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The Human Factor

In

Industrial Preparedness

Complete Report of the Proceedings
of the

National Conference

Under the Auspices of the
WESTERN EFFICIENCY SOCIETY
CHICAGO

MAY, NINETEEN HUNDRED SEVENTEEN

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in
INDUSTRIAL PREPAREDNESS



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National Conference



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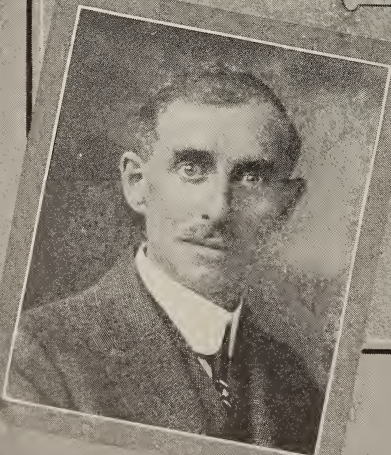
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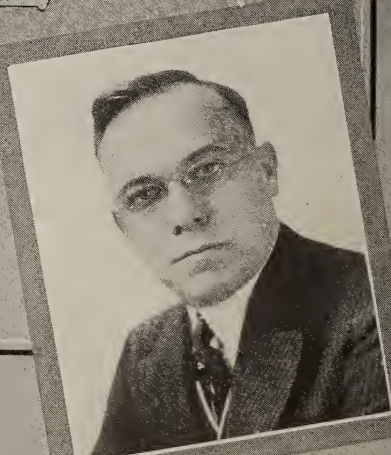
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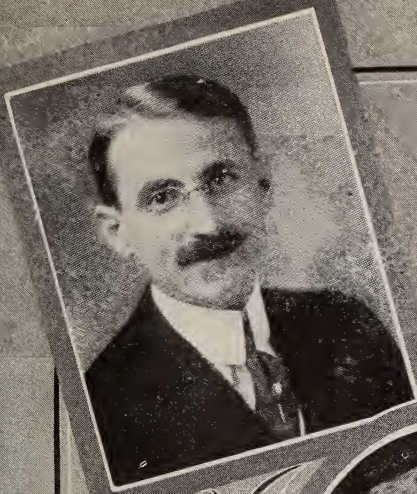
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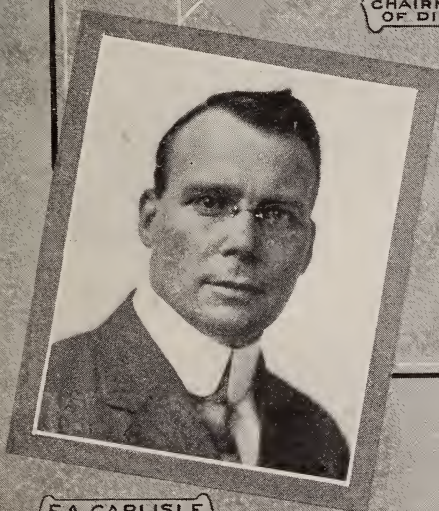
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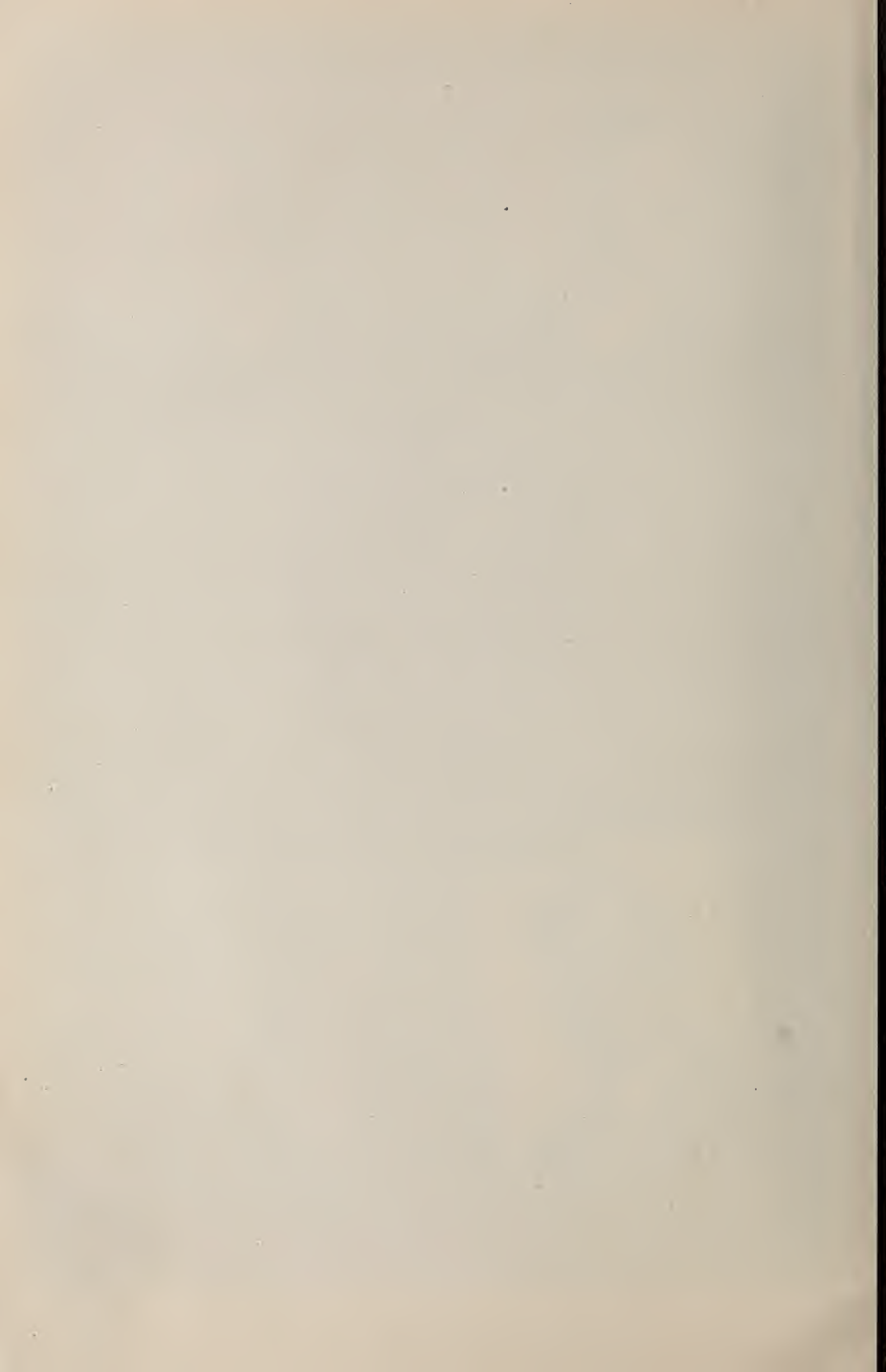
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CONTENTS

	Page
"The Western Efficiency Society," F. M. Simons, Jr.....	12
"The Purpose of the National Conference," Irving A. Berndt.....	14
"The Importance of the Human Factor in Industrial Preparedness," C. E. Knoeppel,	17
"Educating the Management to the Importance of the Human Factor," Harrington Emerson	49
(a) "Training the Future Generation—Function of the Educa- tional Institution," Willard E. Hotchkiss.....	57
(b) "What Industry Can Do for Itself," J. W. Dietz.....	65
(c) "Training the Coming Generation of Workers and Execu- tives," E. W. Puckett.....	70
Round Table Discussion—"Influencing the Management".....	73
"Employment Problems"—	
(a) "Stabilizing Our Labor Units," W. A. Grieves.....	98
(b) "The Hart, Shaffner & Marx Plan," Earl Dean Howard....	111
(c) "Factors Influencing Labor Turnover," Irving A. Berndt..	114
"Labor and Industrial Preparedness," John P. Frey.....	125
Round Table Discussion—"Labor's Viewpoint".....	144
"Safety First," Harry F. Porter,	153
"Corporation School Movement," W. R. DeField.....	159
"Woman's Work in War Time," W. S. MacArthur.....	163
Prohibition a War Measure, H. J. Stauffer.....	171
"Measurement and Standardization," Frank B. Gilbreth.....	178
"Governmental Control of Industries" Charles R. Van Hise, Ph. D....	189
"The Proposed Society of Industrial Engineers," C. E. Knoeppel.....	204
"The Results of the Conference," I. A. Berndt.....	206

OPENING SESSION

WEDNESDAY AFTERNOON, MAY 23, 1917

Mr. H. Thorpe Kessler, President, in the Chair.

CHAIRMAN—Ladies and Gentlemen, Delegates, Guests and Members:

There are gathered here today from various parts of this country, in Conference, industrial engineers, men from prominent commercial and technical organizations, to consider one of the most vital problems confronting the country—"The Human Factor in Industrial Preparedness."

The Council of National Defense has definitely and fully explained the intent of its recommendation that "neither employers nor employes shall endeavor to take advantage of the country's necessities to change existing standards."

Our problem then is to meet the new changes under existing standards.

The men who will address you at the various sessions are peculiarly and well fitted to answer this question.

The advent of the war has intensified the desire to protect the existing standards of labor. Our efforts and the energies of labor forces must be well directed to secure maximum usefulness in the present critical situation.

Industrial Preparedness is as important as the wise conduct of those Government departments directly associated with the prosecution of the war today. The attitude of labor—the problems of management—the proper Governmental control of industries are all problems demanding impartial and thoughtful consideration.

Those of us who are not called or fitted to take part in fighting on land or sea have a patriotic duty to perform.

In the President's ringing appeal to the people of this country there is a reminder that more can be produced, more can be saved, industries can be more economically managed than under ordinary conditions of national life and action. It then becomes our duty—our opportunity to devote our thought and energy to evolve and construct ways and means of producing more with a minimum of changes from existing labor conditions.

The Western Efficiency Society is gratified with the splendid support given it by the Chicago Association of Commerce, and the local and outside Efficiency Societies.

It is our desire that the delegates and visitors feel that we are one large family. Acquaint yourselves one with the other.

It is our wish that everyone present at this and succeeding meetings will feel at liberty to enter into the informal discussions.

Members please rise and give visiting delegates a rousing welcome,

CHAIRMAN: Mr. F. M. Simons, Jr., chairman of the Board of Directors, will explain for the benefit of delegates and visitors the various activities of the Western Efficiency Society, and what it is striving to accomplish.

MR. F. M. SIMONS, JR.: Mr. President, Members and Guests: The Western Efficiency Society is a big topic to try to handle in a few minutes. The President has limited me in that way, you see. My wife has come down here for the express purpose of seeing that I didn't speak too long; she warned me about that before I came, so I have got to be good, no matter how much I want to tell you.

First, a word about the historical development of this Society. Personally, I feel absolutely unqualified to handle this side of the topic. I have not come up through the growth that the Society has experienced. I was not one of the charter members. I do think, however, that this is an appropriate time for just a word of appreciation of the work of those men who have been here from the beginning, and through whose efforts and unselfish work the present status of the Western Efficiency Society has been attained. Men like Mr. Dent and Mr. Berndt, and the rest of you—I am not going to attempt to name them because I should be sure to miss some of them, but I do think that those of us who have come in toward the end should take our hats off to these men who have lived through the early fight.

I have for the present just one or two thoughts. In an informal way, I would like to first say a word about the ideals of our organization, and then, very briefly, outline some of the work it is attempting to do.

There are just two things that come to my mind in the way of ideals. Many other things might be said, but these things are on my mind, and I am just going to say them very informally.

First, it seems to me that this Society stands as near as any organization of its kind could be expected to stand, for democracy. We believe in the democratic organization and promotion of this work. This has a number of applications. In the first place, this Society has not endorsed and will not endorse any individual propaganda in connection with efficiency work. We are back of any good movement that is fulfilling its place in this field. We recognize, therefore, no one type of management.

Another aspect of the matter is the question of the various interests in the field. There is, of course, the manufacturing interest, the commercial interest, financial interest, and so forth, and we have tried sincerely not to limit our work to any one field. We have tried to keep our range wide and to maintain a democratic interest in the work in that way. It is interesting enough that within the very first year of the Western's growth that sex lines were wiped out, and that some of our most active members are business women. Again, the men who are doing the work of this Society represent no one group. There are men interested primarily in the factory, men who are the executives, there are men who are under these executives, there are men who are office managers, and men who are working under these office managers.

I was very much interested in looking over the Western Efficiency Society booklet gotten out a few years ago to note that one of the first things said about this Society was that it was an educational institution. I think that in

a very broad way the Western Efficiency Society feels that it is an educational institution, and that we have kept that thing in mind throughout all our work. The first point, then, is that we are trying to do our work in a democratic way.

One other thing by way of ideals, and that is that we are trying to keep a very high level of professional ethics before us as we do this work. That means, or may mean, that the Society will tread on the toes of some people. Personally, I hope that in the future we will. It seems to me that the Society if it did in that line what it should do, that there will be some toe-treading, but that is not the main thing that I wish to emphasize. It is that long run success in this movement depends, it seems to me, more on this one thing than on any other thing; that you, that we, would be unwilling to do things in this movement which would not meet our ideals as to what should constitute a code of professional ethics. What that code is at the present time no one can say. That is, the movement is so new it hasn't had time to crystallize, and I think it would be unfortunate at the present time to try to work out a code of that sort. But it is nevertheless a very real though informal code that most of us have in mind: (1) the democratic idea and (2) this idea of keeping a high standard of ethics. These things are not always easy to work out side by side.

As a concrete illustration of that, I would like to just mention one thing. At the present time, in order to keep professional standards high, the Membership Committee of the Board of Directors is trying to work out a scheme which will give recognition to men who have accomplished something in this field. Up to date we have been unwilling to even present that scheme to the Society, because of the fear—much as we believe that that thing is necessary, and that it must be done—because of the fear that there is danger in it of losing this democratic spirit that has been one of the outstanding features of our work up to the present time.

Those two things are important, but they do not always work out. It is not always possible to work them out in a very satisfactory way. We are trying to do it, that is the big job ahead of us.

Now for the work of the Society. I think that from the bulletins and the various literature of the Society that you can get, this is very plainly shown. It is not necessary to say very much about it. I do believe that for an organization of this kind there is one thing that should be emphasized. Important as the meetings are, important as our informal personal meetings are, I think that the thing that probably has done more than any other one thing, that has made the engineering societies for instance, like the A. S. M. E. and kindred societies, great, and has made their work lasting, has been the research work they have done, and I feel that whatever you may call it, that this organization or every other organization of this kind must do some lasting work of that character. We are doing that and we are also doing more informal work.

So much for the present work of our organization, as to its ideals, as to its tasks. What the future has in store for us none of us can tell. The future of this organization, of course, depends on the organization itself. We feel that if this organization hasn't a future, that we alone are to blame.

The movement is oversold, and the time is ripe for a big expansion of our work. I believe personally that there is no question at all but that that expansion is coming, that it is here, and that this organization is going to have a much wider, a much broader sphere of influence than it has had, important as that may have been. (Applause.)

CHAIRMAN—Mr. Irving A. Berndt, who is one of the four men that conceived the idea of the Western Efficiency Society nearly five years ago, is going to explain to us the "Purpose of the National Conference." Mr. Irving Berndt. (Applause.)

MR. IRVING A. BERNDT.—Mr. President, Members and Guests: This was such an important item in my mind that I made it a special point to write out my notes on the ideals of the Conference Committee, and correct them, so that there would be no mistake about how the matter stands. I am going to read that.

PURPOSES OF THE NATIONAL CONFERENCE

By I. A. Berndt

For many a month previous to President Wilson's notable and historical address to Congress, declaring the existence of a state of war between the United States and Germany, an appreciation had been growing on many of us that if this country is to make the most of its opportunities in the

world of commerce and industry, we must pay particular attention to the human element.

The factors leading up to such conclusions are many, and will be emphasized by the various speakers on the program of this conference.

The very minute war was declared, this emergency became a national crisis. We know that important as man-power had become before the declaration of war, its importance was multiplied after it, because of the millions of men who would be drawn into the Army and Navy and the manufacture of war supplies, as well as to serve the greater demands which would be made on our industries to supply the wants of our allies.

With a knowledge of this crisis, The Western Efficiency Society felt that by planning to bring together in conference the best available thought on this subject, much light would be thrown on the problem, and with this talent gathered from all parts of the country, constructive recommendations must result which, if followed by our industries and our government, would do much to relieve the situation.

The value of this conference and its importance have been very aptly stated in an editorial in the Chicago Herald last Sunday morning, reading as follows:

THE HUMAN FACTOR

"The Western Efficiency Society has done well in directing the emphasis of its coming conference toward "the human factor in industrial preparedness." For upon the efficiency of that living element depends the success or the failure of America in world war."

"An acute student of the European developments of the war period has

asserted that the democracies of France and England have been able to place a heavier burden on the workers than have the autocrats of Germany. The manifest reason for this is to be found in the fact that the French and English workers voluntarily chose to sacrifice the restrictions and immunities which they had won while the German regulations were established by the state. But even thus it was learned that the English operatives had attempted too killing a pace.

"They had tried to run a Marathon race at a hundred yard dash speed. Consequently, the human factor began to fag and production failed. The industrial army was willing to endure almost any strain, but its efficiency was reduced when hours were too long and the work too continuous. The sheer necessity for more and more munitions thus accomplished changes in Great Britain which previously had been considered only as items in social reform.

"Governmental bodies are familiar with this lesson. What Washington knows cannot rule the country, however, unless public opinion in the nation offers its support. The efficiency society accordingly may render valuable service in stimulating thought about the men and women and children whose hands must fashion victory or defeat for the United States."

Besides the very definite constructive moves which will be recommended as a result of this conference, and in order to make permanent the organized thought represented in our Conference program, it is planned, as announced, to arrange for the possible organization of a National Society of Industrial Engineers next Saturday at 10 A. M. Further information regarding this organization will be given at the various sessions of the Conference. All interested are requested to register for this meeting at the registration desk.

It is our ideal to make our conference eminently constructive, in a national crisis.

THE CHAIRMAN: Mr. George C. Dent, the secretary of the Western Efficiency Society, was its first secretary, and has been the secretary since the inception of the Society. At the one hundredth meeting of the Society, held last evening, a resolution of gratitude and thanks was extended to Mr. Dent, because he has been one hundred per cent efficient in his attendance; he has not missed one of the one hundred meetings. (Applause.)

Mr. Dent will read the official announcements and the official business of the Society.

Mr. George C. Dent read telegrams from Theodore Roosevelt and Chas. M. Schwab, in which they expressed their hearty co-operation in the movement to arouse national attention to the importance of "The Human Factor in Industrial Preparedness" and regretted previous engagements would not permit of their attending the Conference and taking an active part in the work.

fort and entertainment of delegates and visitors.

Mr. Dent next told of the arrangements made for visitors to inspect various plants in Chicago, plans for the entertainment of the ladies, and of courtesies extended by Western Efficiency Society members for the com-

THE CHAIRMAN: Possibly the speaker of the afternoon is better



E. W. Anderson

known by his book on Industrial Preparedness, which has been called to the attention of this government. Mr. Knoepfel has been in Washington a number of times during the past two years and has been called into conferences in connection with the present situation. There are very few men in this country that have had the vision and the foresight to see the conditions which now exist today, and which industries generally appreciate. In 1911 Mr. Knoepfel in his book called "Maximum Production," said: "There is a task ahead of this nation, a task of such a magnitude as to warrant executives giving it their earnest and careful consideration, as well as to attract the attention of those who are in a position through training and natural ability, to assist in solving the many problems directly bearing on the question of increasing the efficiency of human endeavor." Mr. Knoepfel is a disciple and follower of Mr. Harrington Emerson. It gives me very great pleasure, this afternoon, to present Mr. Knoepfel.

MR. C. E. KNOEPFEL: Mr. President, Members of the Western Efficiency Society, Ladies and Gentlemen: Before I get into the body of the talk which I have prepared, I want to read a letter from Howard E. Coffin, of the Advisory Committee, Council of National Defense, written May 19th:

"Dear Mr. Knoepfel: Will you kindly extend to the Western Efficiency Society my best wishes for the complete success of the National Conference. Our country is embarking upon an industrial and military activity which bids fair to tax even its tremendous resources to the limit. Our task is not one of a month or of six months, but may extend over a period of years. There can be no withdrawal from the position we have taken. No other issue than that of victory will be acceptable to us, but to achieve this result we must be prepared to concentrate our effort and every ounce of our great power, both in materials and in men.

"It lies within the province of our efficiency engineers to play an important part in this great work. To conserve our resources and to make efficient our expenditures and effort in money, in materials and in men, will, sooner or later, require the concentration of our industrial engineers in every line. To effect a national organization of such character as will provide the government a single channel of contact with that group of men peculiarly skilled in the promotion of industrial efficiency should be the greatest work of the Chicago Conference.

"Good luck, more power to you." (Applause.)

THE IMPORTANCE OF THE HUMAN FACTOR IN INDUSTRIAL PREPAREDNESS.

I am not unmindful of the distinct honor conferred upon me by your Society, in asking me to deliver this opening address, nor do I underestimate the nature of the task that confronts me in attempting, insofar as I am able, to sound the key-note at this conference, which I can promise you is going to make history.

With most of the peoples of the earth stark raving mad, and at each

other's throats; with nearly all of the nations of the globe divided into two gigantic camps, each trying to annihilate the other; with both spending money like drunken sailors and destroying life and property as if there were no such thing as posterity to bear the horrible load; with each trying to outdo the other in the display of cunning, of devilish skill in developing mechanisms to kill and destroy, the injunction "come let us reason together" should be of unusual significance to those of us gathered together, confronting as we are the most critical time in our history—that of finishing this war and preparing for the aftermath.

We are at the parting of the ways.

No longer can we continue in the wasteful, pleasure-seeking and extravagant path we have been traveling in the past, and continue to survive as a nation, for the very good reason that a strong and vigorous power, whose gospel of "might makes right;" whose utter disregard for all the laws of humanity and international contact and intercourse, is every day doing its utmost, to dominate and force its will on the rest of the world.

In this conflict of autocracy against democracy; of the rule of "divine right" as against the rule of a free people, the final decision is going to rest with the United States of America—you and I. How we decide depends entirely on whether we look upon this conflict as a six round sparring contest, or a gruelling prizefight with bare fists and no ring rules; whether we consider it just another border skirmish or a war of the most hellish variety.

In New York I was told that Italy could not move her navy because it did not have coal for the fleet, and could not get any because England could not spare the ships in which to send it; that France was on her knees and calling her 1918 boys to the colors, with her industries facing a serious condition due to a shortage of coal and her people looking forward to a dismal and cold winter for the same reason; that England was facing a serious food situation and that the curve of U-Boat tonnage destruction was slowly but steadily increasing, with new German submarines being built at the rate of three per week.

Only a few days ago Lord Derby, England's Secretary of State for War, said that this war will not be over until the full weight of America has been thrown into the scales, not until America begins making war as though she alone faced Germany and that the bigger the blow America is able to deliver and the sooner she delivers it, the quicker will the war end and the new order of things be assured. He asked us to be on our guard against German propaganda, which aims to convince the world that the war will soon be over, that Germany would be willing to make peace—on her own terms—but not for a long time on the terms that democracy will force her to consider.

We all know the situation in Russia. One day there is an improvement in conditions while the next brings resignations and disorder, the effect of which is demoralization both in the army and in the government, all of which assists Germany materially. Kerensky, the Minister of Justice, recently said:

"As affairs are going now, it will be impossible to save the country."

Following this comes the resignation of Mulikoff, the most constructive man in Russia today, a hard blow to the Allies indeed.

I am not a calamity shouter, attempting to feed you pessimistic pills. I have had an opportunity, however, to get in touch with the kind of facts which convict our people of the lack of a real appreciation of the task ahead of this nation, great as it is in natural resources, in financial strength and in men. I see in many of our people the Mr. Britling we have all read about, who could not see such a thing as war at first, and when it came felt that it was a "bally little mess" that the regulars would fix in short order, but when confronted with the real facts, when the war was brought home to him through the death of his son, he became grimly determined and "saw it through."

We are going to see it through, but to do so without passing over the same road that Mr. Britling took, we must realize that each and every one of us must "get down to brass tacks," for barring miracles, and miracles should not for a moment enter into our calculations, the experts say that a long struggle is ahead of us before Germany can be decisively beaten, as **decisively beaten she must be**.

As Roosevelt well said recently:

"If we are to cure ourselves, it must be by our own exertions; our destiny will certainly not be shaped for us as was Germany's by a few towering autocrats of genius, such as Bismarck and Moltke."

The time for talking, for criticism, for ridicule, is over—from now on our slogan must be ACTION; action of the most vigorous kind; action in which individual differences must be forgotten; action in which everyone must put their shoulders to the wheel and with a mighty heave, do their bit in making this old world of ours a proper and fit place for ourselves and our children to live in.

Just a word of caution, however. Let this people line its coasts with batteries; have vast armies and the largest navy in the world; own the greatest air fleet and the largest number of submarines; let the farms and factories yield the greatest amount of output possible. If with all these things, which are supposed to make for prosperity, for safety and for happiness, the soul of the nation is dead, the nation will not long survive. What is the soul of a nation? The religion, the thought, the outward expression of an inner conviction, the thing for which a people will fight and die. What gives a nation a soul? Wisdom, unselfishness, thoughtfulness, good government, co-operation, protection, employment and sufficient wages or income to live a self-respecting life.

The Task Ahead.

Never was a nation called upon to play a larger part in the winning of a war than this country. We must finance our allies; supply them food and wearing apparel; build ships; furnish arms and munitions; furnish industrial and military leaders as well as a large army of trained men, and throw our navy into the contest. In addition to all this we must mobilize our resources and keep regular lines of activity as uninterrupted as we possibly can.

The following by Macfarlane in Collier's (March 10 and 17) will prove interesting:

"Here is one fact in regard to the manufacture of rifles: four of the largest arms-producing factories in America took a contract in the spring of 1915 for approximately 5,000,000 rifles for the Entente Allies, to be delivered within two years' time. That two years is almost up and but 15 per cent of the contract has been completed and shipped. Yet these factories had behind them adequate capital and the inexhaustible resources of America.

"Bear in mind also the rough estimate that for every man on the firing line there must be five rifles in existence; the one in his hand, the one in immediate reserve, the one back at the base, and one each in the hands of the two recruits that are in successive stages of training to take the fighting man's place when he is killed, disabled, or captured.

"The British allotment of machine guns is 72 to each 2,000 men, while our allotment is but 6; and that in the face of the dreadful experience abroad which is perfectly well known to us all. And, by the way, the 240 Lewis machine guns which the army now possesses are due to no foresight of the War Department, but to the generosity of the British Government, which kindly 'lent' us that number out of a contract being filled for it in America."

A stupendous and staggering load it seems, but one which can be worked out through ORGANIZATION; through the proper adjustment and relationship of the human factor, which we are here to discuss. We have all the potential possibilities imaginable. All we have to do is to use them wisely, **under expert direction.**

Coffin said that in war as in peace, there are now three graces—the Army, the Navy and Industry, and that the greatest of these is Industry. In other words, without industrial preparedness there can be no real military preparedness. If we do not have these things our part in the world conflagration will be both weak and ineffective. Coffin also said that we have learned that it takes from one to two years of time and conscientious effort to change any large manufacturing plant from its usual peace time commercial activity to the quantity production of war material for which it has had no previous training; that while we have vast resources in manufacturing and producing equipment, we are unorganized and uneducated for the national service. This spells but one thing—INDUSTRIAL REORGANIZATION.

A state of war has existed for nearly two months, and while it is true that the matter of finances was taken care of promptly by Congress, it only recently settled the army problem, with an enormous amount of legislation to be put through. I do not want to be unduly critical, but I wonder sometimes, if Congress really appreciates that this country is at war and with the strongest aggregation of military brains the world has ever seen, and that every minute is precious.

Treasury officials do not conceal their concern over the slowness with which the "Liberty Loan" is being subscribed to. On May 15th, Secretary McAdoo said:

"Failure to subscribe the \$2,000,000,000 required would be a confession of national impotence. I do not for a moment doubt the overwhelming success of the Liberty Loan if the people are made to realize that no great work of this kind can be accomplished unless everyone throws himself into the task with the energy and fire of determined patriotism."

Secretary Baker of the War Department, in a letter to Senator Jones on May 17th, made this statement:

"Owing to a depleted state of our supplies it will not be practicable to call out the first 500,000 men to be raised under the provisions of the bill now pending before Congress, until about September 1st, so there will be no appreciable interference with the labor supply of the country until that date."

Our experience on the Mexican Border should have pointed out the kind of lessons to the War Department that would have resulted in some better action with reference to equipment and supplies.

Below are a few quotations from the inspection officers who served on the Mexican Border:

"Only two days ago the quartermaster discovered 5,513 new wool blankets which he did not know he had.

"Rifles and bayonets are in an awful condition—some of them completely covered with rust, inside and out.

"The regiment arrived at the mobilization camp without the articles required in the surplus kit bags. The men suffered from lack of under-clothing, as there was none on hand to issue to them.

"The organizations were fairly provided with harnesses and wagons, but there were practically no horses or mules to draw the wagons.

"Machine guns were lacking for many of the regiments.

"It will be nothing short of murder to send these troops into any sort of active service."

The Part Played by England.

In the confusion and uncertainty that is a part of our present efforts to mobilize our resources efficiently and quickly, a glance across the water may give us new courage.

Before the war, labor in England was better organized and was more powerful probably than in any other country. The unions absolutely limited the production of labor at a point way below the average production per man in the United States; they had forced about all the wage raises that the various industries could stand; they had regulated the hours of labor, and controlled the employment of labor. With all these accomplishments the condition of labor was unsatisfactory to the trade unions themselves, for wages were low in comparison with prices, and there was lack of employment. Labor and capital were in continual warfare, though capital was suffering without the power of retaliation against the powerful trade unions except through the raising of prices. The cost of manufacture due to low production was so high that English goods were unable to compete with foreign goods, sales were low and were falling off, and less and less men were being employed and more were emigrating to colonies. The statement was made to one of our engineers by several manufacturers whom

he visited in England that if conditions continued as they were they would be forced to discontinue in business.

But war came, and what followed can best be expressed by William Hard in Metropolitan:

"The trade unions of Great Britain stepped up to the altar of war and placed on it all their hard-won rules and rights and privileges, all their restrictions on output and on employment. What was the consequence? Immediately in thousands of factories all over Great Britain there was a revolution in methods of production. Instead of old awkward machines operated exclusively by union members, by skilled craftsmen, there came to be long rows of new improved machines operated not merely by skilled craftsmen, but by men semi-skilled and by men unskilled and by women."

The result is that under the awful pressure of war, capital and labor in England are gradually reaching a new understanding. Necessity is, of course, forcing a solution of this important problem and the truce is more or less temporary, but English industry and English workers will never go back to the conditions which existed before the war—to the old order of things. Workers and employer must realize here that the fate of democracy depends upon whether or not they are willing to put their all, if necessary, at the feet of the war-god.

The British solution of industrial troubles was not found in a moment. Lloyd-George, on December 2, 1915, told British workmen:

"Either we must tell the soldiers that we are sorry that we cannot get the guns to enable them to win throughout 1916, owing to the trade-union regulations, or we must tell them that if they manage to hold out for another year perhaps American workmen will help us get a sufficient supply for 1917. I cannot return to Parliament and report through the House of Commons to the British Army that skilled workmen won't suspend their rules to save their fellow countrymen's lives on the battlefield."

Some of the accomplishments of England since the war started show conclusively that a democracy when it really wakes up, can become unusually efficient. A few of them, according to Mrs. Humphrey Ward, are as follows:

Personnel of the navy increased from 140,000 to 400,000.

Tonnage of the navy increased well over 1,000,000 tons.

Eight million men moved across the seas—almost without mishap.

Nine million tons of explosives carried to the British armies and those of her allies.

Over a million horses and mules and fifty million gallons of petrol supplied to the armies.

Twenty-five thousand ships examined for contraband of war.

Further, the switching of productive equipment in England, from peace time pursuits to war time activities, proves also that a democracy can be resourceful, as is indicated by the following:

A glazier made cartridge clips.

A music roll plant made gauges.

An infant food plant made plugs for shells.

An advertising agency made shell adapters.

Watchmakers adjusted fuses.

A baking machinery plant made six-inch high explosive shells.

A jewelry house made periscopes.

A phonograph plant delicate shell parts.

A cream separator factory made shell primers.

A textile machinery firm made field kitchens.

Edward N. Hurley recently said that there were more men in England today reading the books of American writers on the efficiency and management movement than in any other country. In his article "The War After the War," Isaac F. Marcossen, says in *The Saturday Evening Post*:

"I have watched the inspiring spectacle of some of these factories, have walked through their forests of American-made automatics, heard the hum of American tools as they pounded and drilled and ground the instruments of death. What does it signify? This: that quantity output of shot and shell for war means quantity output of motors and many other products for peace. You may say that quantity is a matter of temperament and that the British nature cannot be adapted to it; but speeded up, munitions making has proved the contrary. The British workman has learned to his profit that it pays to step lively. High war wages have accustomed him to luxuries he never enjoyed before, and he will not give them up. Unrestricted output has come to stay.

"Five years ago the efficiency expert was regarded in England as an intruder and a quack; to use a stop watch on production was high crime and treason. Today there are thousands of students of business science and factory management. In the spinning districts girls in clogs sit alongside their foreman listening to lectures on how to save time and energy in work. Scores of old establishments are being reborn productively. There is the case of a famous chocolate works that before the war rebuffed an instructor in factory reorganization. Last year it saw the light, hired an American expert; and today the output has been increased by twenty-five per cent."

The Need for Organization.

In an article published over a year ago, I said:

"We are a free people; we have wonderful resources in money, men and materials; we believe 'in union there is strength.' We are an unusually prosperous nation; we are now contemplating preparedness. Will our people, believing as they do in unity, take these resources and **prepare industrially** as well as in a military way to lead the world, or will it take a great war to shake us free from individualism and force us, as it is forcing England, to learn the great lesson that the power behind the most efficient civilization is **organization?**"

Well, we are in that war, and the power behind what we do is going to be the power of organization. Let me explain what I mean by organization. Everything that we do or say; everything that we use or make, is the product of the brain. In the last analysis **the human being is at the bottom** of everything. The coal, oil and iron would stay in the ground, the lumber would remain in the tree, and electricity in the air, if the human

through initiative and knowledge, did not harness them to serve his ends.

Organization, therefore, is the proper adjustment and relationship of human beings, in an effort to accomplish certain definite ends in life. If this adjustment and relationship is faulty, then we have an inefficient organization, incapable of making a success of what is undertaken. If it is correct, logical and along sound lines, however, then success is bound to be the result. A few years ago I looked upon organization work as a cold-blooded adjustment of departments. Today I consider it as something wonderfully worth while—as the making over of humans—as MAN BUILDING.

This conference could not have selected a more appropriate subject for discussion than this great subject of the human factor in preparedness. As James Logan, General Manager, United States Envelope Company, well says:

“Hence I suggest that our immediate problem is the problem of showing greater understanding of the human element in business when working with our help. This has always been as difficult a problem as any in business; today for reasons which I have explained, I think it is the most important problem, barring none.”

The great question confronting us is how and in what manner?

This question of the relation of the human element to the gigantic task of preparedness, is so basic that it touches the problem at every angle, and in such a way that we cannot get away from it as it affects each and every one of us.

With reference to industry, Frank A. Vanderlip puts it in this characteristic fashion:

“How is labor to be had to make uniforms unless it is released from making other clothes; how are looms to be had for blankets unless released from something else; how is steel to be had for ships, tin cans and agricultural implements unless other consumption is curtailed; how are women to be had for offices unless released elsewhere; and finally, how are we to put \$7,000,000,000 or \$8,000,000,000 of purchasing power at the disposal of the government unless we curtail our individual expenditures?

“The country should immediately awake to the fact that it has a great task in hand and that it cannot carry on a war like this with one hand and continue to do all the business it did before with the other.”

Take the matter of food as another example. The government is organizing a system of supplying labor for farms this summer, and in a short time expects to be enrolling hundreds of thousands of men, women and children for this work. State organizations will co-operate with the National organization. State boards appointed by the various governors will name county agents and they in turn will name community agents, who will ascertain farm needs and also register persons who can give all or part of their time to farm work. Surplus of labor or labor shortages will be matched and the labor departments will aid in effecting the proper distribution, the railroads to aid by giving low transportation rates to laborers.

Transportation is still another example of this matter of human ad-

justment. The war board of the American Railway Association issued the following notice to the roads on the night of May 17th:

"Reduce the number of special trains and give up running excursion trains.

"Consolidate where practicable through passenger train service and eliminate those trains which are not well patronized.

"On branch lines where two trains are operated, try to reduce to one train a day.

"Where practicable substitute mixed train service for separate passenger and freight service. Closely review number of scheduled freight trains where tonnage is insufficient to load them fully, with a view to reducing the number of trains.

"Where passenger trains are double-headed for speed, a readjustment of schedules or cutting off cars where possible, will release locomotives for freight service.

"Reduce as far as practicable luxuries, such as observation cars; in the interest of economy reduce the present rather elaborate and luxurious bills of fare on many dining cars.

"Move 'company' freight on underloaded trains. Operate work trains as far as possible in slack times. Store coal in slack times.

"Make proper train loading of primary importance with officials and train crews. Give publicity to those making good and poor records."

Industry and the Worker.

Before getting down to definite recommendations, let us give some consideration to the industrial side of things.

Howard E. Coffin recently said:

"Twentieth Century conflict demands that the blood of the soldier must be mingled with from three to five parts of the sweat of the man in the mills, mines and factories of the nation in arms."

The attitude that the labor world of this great nation is likely to take in the critical period in our history, is therefore something worth considering. I know of no better way of putting it before you than to quote from a recent letter to "The Independent" from Samuel Gompers, President of the American Federation of Labor; Vice-President of the National Civic Federation and Chairman of the Committee on Labor of the Advisory Commission of the Council of National Defense, as follows:

"In a word, good working conditions are as essential to high production as high production in this time of stress is essential to the maintenance of a battle-front. It would seem to be treason to the best interests of this country to desert such principles now. Now more than at any time in our national history we do not want production to fall off; rather, we want to accentuate it. Now more than ever we want the army in the factories and fields to be an army of strength fighting for democracy; we don't want a nation of working people with hearts and bodies weakened. We need, rather to strengthen our men and women for the war and for the reconstruction after the war.

"The supreme thought that I have in cooperating and in asking the

cooperation of the men of labor in America is to demonstrate that democracy does not spell inefficiency, but, on the contrary, to demonstrate that the democracy of America can show to the whole world that in war as in peace it is united for any emergency."

The following gem from a worker, who is also a socialist, will prove encouraging to the student of preparedness:

"I firmly believe, unless the spirit of hostility can be replaced by the spirit of cooperation—we are in for some sorry times. I also believe it behooves every individual and every organization who cares for their country and their fellowmen, to use every effort to avoid any conflict whatever. We cannot expect to climb the hill to sun-crowned heights with industrial strife on our backs."

A sublime spectacle was staged in Washington May 15th, when men whose fortunes represented many millions of dollars, met with the Committee on Labor of the Advisory Commission of the Council of National Defense, to work with Samuel Gompers in an effort to bring about full cooperation between the government, capital and labor, for the efficient prosecution of this war.

The following extracts of speeches at this conference, are worthy of mention and consideration:

Mr. John D. Rockefeller, Jr.: "It is a great pleasure to know the labor people. I would like them to know me as their friend. I sometimes regret that the opportunity did not come to me to make my way in this world with my hands as my father did. But circumstances made it necessary for me to go a certain way, and I have done what I felt best. I honor and respect men who have made their way with their hands, and I covet that opportunity for my sons, for I consider those who work with their hands as honorable and often more honorable than those who work only with their heads."

Mr. Daniel Guggenheim: "Yes; it is a revelation, and it has inspired me. I have felt for some years that my work was nearing its end; that I might be allowed to take things a little easier. You see, I have worked for forty-five years, and I was thinking of turning over my work to my two sons and to my son-in-law. But recently I arranged things so that they could all go to the front when the call came, and I could go back into the harness and do the work which they were going to do for me. When the call came from Mr. Gompers perhaps I felt that I had enough on my shoulders. But I came here, and I want to say that I am prepared to do anything I can do—just as long as I am able to carry it out."

Mr. Theodore Marburg of Baltimore: "It is a fight for justice we are engaged in, and it depends upon what can be accomplished by groups like this whether it will end in a reasonable time. I am sure what the end will be. You may have injustice triumph for a time, but it is impossible that the wrongs which have been recognized by all the world should triumph in the end. My fear is that the same apathy which characterized England at the beginning of the war is going to characterize our attitude. I fear a full year may pass before we are aroused. One duty before us is to rouse the people."

You have heard from the engineer, the labor leader, the worker and representatives of capital, all of which show that there is unmistakably a willingness to get together? The question is—what are some of the factors which must be considered?

In a constructive program of preparedness that will give this country adequate defense both in time of war and in time of peace, and in order that this nation **may be born again**, we must have four things:

1. There must be greater efficiency in government, with reference to its relation to industry and to labor.
2. The workers must become more efficient.
3. The employers must adopt all methods that make for the reduction of waste.
4. Worker and employer must co-operate more in the future than they have in the past.

The absorbing question is **How?**

I have never liked the terms "Scientific Management" and "Efficiency Engineering" and I am going to propose for your consideration the term "Co-operative Management," which would be everything that the name implies; a plan of management in which co-operation between worker and employer would be the basic consideration.

Imagine what would happen if a body of workmen should go to their employers and say:

"We have made a careful study of this new science of management. We want to assist in bettering working conditions; we want to help you to reduce your costs so you can increase your sales, knowing that in so doing we can increase our earnings and you your dividends. What do you want us to do?"

It would not be long before there would be a relationship between capital and labor that would mean low costs, high earnings, the best kind of wages, shorter hours, and a spirit that would make for permanent betterment.

I sometimes wonder why it is that those among the labor leaders who have vision, who are actuated by high ideals and excellent motives, and there are many of these, have not come forward and urged their following to take an active part in this important work, to the extent of employing counsel on management, showing their employers where waste exists, for more often than you have any idea of; the workmen know where to put their fingers on losses. It seems to me that the next era in management will see both sides, shoulder to shoulder devising and installing betterments, and if this will be one of the by-products of this war, it will not be without its compensations.

Would it not be better for the employer and the worker to get together and with the help of outside counsel, effect the kind of a compromise that would enable both to work in harmony rather than in discord? Would it not be better for each to give up, for the time at least, some of their aims if necessary, and working as one, make consistent gains towards better condi-

tions, rather than fight for 100% of the things they want **but which they will probably never get?**

Some of the problems needing our immediate attention are:

1. How to keep needed workmen from enlisting or being drafted.
2. Strikes.
3. Sickness and accidents.
4. Fatigue.
5. The stop watch.
6. More producers and more production.
7. Women's Place.
8. Education.
9. Prohibition.

Enlisting Workmen.

I was informed in Washington that the plan with reference to the selective draft, is to give a manufacturer ten days after one of his men is called, in which to enter a protest against taking him, with reasons why he should be left at home.

As the full strength of the National Guard, however, will be drafted into the U. S. Service, July 15th to August 5th, it will mean that a minimum of 329,000 men will be added to the 293,000 regulars who will be under arms by June 15th. Most of these men have been and will be secured under the volunteer system and it stands to reason that unless steps are taken to enlist the help of the government in keeping the men critically needed at the bench and the machine, industry is going to be severely influenced by this volunteering.

For instance, it is estimated that there are only about 3,000 really expert gauge workers in the country and nearly everyone appreciates how seriously we are in need of gauges and dies with which to make arms and ammunition. What a pity it would be under the circumstances, if many of these gauge makers would enlist, forcing industry to train new men on this complicated work.

Strikes.

There should be no strikes at a time like this and ways will have to be found to settle honest differences before a strike occurs. Should one take place, the only thing left is for the government to step in and take over the plant, as it did the plant of the Brown Shoe Company, Moberly, Mo., last week. The plant had been closed for four months due to a strike and all efforts to reopen the factory had failed. The plant will now be run under government supervision and will manufacture tents, leggings and other war materials. There will be no strikes if the following letter which should be distributed to workmen in this country, is considered. It is from an English soldier who for fourteen years had been a faithful worker in a pottery factory, then was drafted to the colors and sent to the trenches in France:

"Jack, it breaks my heart to see in the papers that you and your comrades are now wasting time to scrap about wages, hours and such child-play. I didn't blame you before the war. I was then a labor union man myself. I will not blame you for doing so after the war. If I live we'll then

be union men together. But for God's sake, Jack, forget such things now. Remember that we fellows are suffering, starving and dying over here, largely for want of more ships.

"Why, Jack, if I could only change places with you, I would work all day and all night, and be happy to live on bread and water. Jack, the very worst conditions which you ever saw are Heaven to what us boys over here are going through. What's money or hours or anything else compared with getting ships built to save us from Hell. I say, Jack, for God's sake do more for us!

"I hear you don't believe in war, Jack. Well, I guess none of us fellows like war much better than you do. But let me tell you that the only way to make this the last war is to give us your very best now. Please, please help us. And say, Jack, please post this letter where the other boys will see it. Can't write any more. I'm too weak. Goodbye."

Sickness and Accidents.

The following statistics will prove interesting in connection with our consideration of industrial matters.

35,000 workers are killed in industry yearly.

700,000 workers are injured yearly.

Each one of our 30,000,000 workers loses on an average of 9 days a year through sickness causing them a monetary loss of \$700,000,000. In other words, there is a loss in productive effort in the things which could be built each day of 270,000,000 days a year.

Frederick W. Lohran in the Times Magazine says:

"It is a generally accepted principle of modern sanitary science that a large amount of sickness, in industry and otherwise, is preventable and that the average duration of life can be materially prolonged by deliberate and rational methods of personal, social and industrial hygiene. It is safe to assume that at least 25% of the sickness among workers can be prevented, thus diminishing present losses by about 67,500,000 days a year, resulting in a saving to workmen of \$168,750,000 plus the gain in productivity of \$337,500,000, making a total economic gain to the nation of \$506,250,000.

In our consideration of the human factor in preparedness, we must not lose sight of the part that "fatigue" will play in the scheme of things. Those of us in the Industrial Engineering field have repeatedly called attention to the effect of exertion and fatigue on the worker and while some attention has been given to the matter, it has not been all we desired. If the physical condition of a worker is worth consideration in peace times, it is certainly of fundamental importance in war times, when under the natural stimulation due to the call to arms, men and women will go to the limit, if not beyond their physical endurance.

Roughly figuring it takes three to five men in industrial pursuits to maintain one soldier on the firing line. You can, therefore, fully appreciate what it will mean to maintain an army of from one to two million men. The drain on industry will be enormous, and to make good, part of this loss from the industrial fields, woman and in some cases child labor, will have to be utilized, in fact, I believe I am safe in predicting that the next six months

will see utilization of woman and child labor on an enormous scale, which, of course, makes the question of fatigue and physical welfare, all the more important.

England has done a wonderful piece of work along these lines. The subject has received scientific attention, with the government behind it. Three different investigations were conducted—by the Home Office, the British Association and the War Office, and the Committee on the Health of Munition Workers, with Sir John Newman as its chairman. It was found that night work, Sunday and overtime work caused an increase in sickness and absence on the part of man as well as woman labor. In one case of a works employing 36,000 hands, the percentage of sickness increased from 2.9% to 4%. In two departments the rate among men on overtime was 5.5% as against 3.7% for those on double shift. In addition it was found in case of one thousand of the men that the rate was as high as 8%, due to the greater age of the workers, a fifteen hour day, Sunday work and the natural strain of wartime production, which was enervating after a time.

Trained investigators studied output in a careful manner. One of the experts, Prof. Stanley Kent, found that considered in groups, employees lost from 18 to 27% in time because of fatigue caused by continuous overtime and lack of a weekly day of rest. Another expert, H. M. Vernon, stated that women workers, engaged in moderately heavy labor, increased their output 8% when hours were reduced from sixty-eight to fifty-nine per week.

In the confusion that will be contingent on a rapid mobilization of industrial workers, whether men, women or children, do not let us overlook the question of hours, rest periods, both daily and weekly, and the effect of night work, Sunday work and overtime.

As you well know, an enormous responsibility rests upon the shoulders of the workers. Let us do our share in securing for them, the kind of conditions that will maintain their physical fitness and at the same time insure a maximum production of the proper quality.

The Stop Watch.

Speaking of the stop watch in management, about which there has been so much discussion and discord, Miner Chipman, in his investigation for the workers at the Watertown Arsenal, on conditions under the Taylor System, in operation there, says:

"After a careful study of over two hundred statements, written by as many men employed by the government and working under the system at Watertown Arsenal, I found the fundamental ground for complaint was not time-study or premium. Throughout these statements it was made clear that the objection to these devices of scientific management were based upon the method of introduction and administration and not upon the devices themselves."

If there is merit in the stop watch and time-study; if it is needed in any constructive plan of co-operation or scientific or efficiency management, then let us go at the problem, not by trying to force the use of this mechanism as a device of management, but by getting both sides together on the method of introduction and administration.

More Producers and More Production.

Two conclusions are forced upon me as I study the subject of human relationship:

1. There must be more producers.
2. There must be a greater amount supplied by those who now produce.

The first can only be brought about by giving labor shorter hours, better working conditions and rewards which will attract workers. The second is possible by eliminating waste, standardizing conditions and operations, proper planning and enabling men to earn that which represents to them their skill and co-operation.

Woman's Place.

In this adjustment of the human factor, the load that is going to be thrown on the shoulders of our women, will at first glance seem to be too much for what has been termed "the weaker" sex, a fallacy by the way, that this war has knocked into several kinds of a cocked hat. She is standing shoulder to shoulder with the man, doing her bit just as nobly, just as willingly, with, in fact, a greater degree of self-sacrifice, with the result that the old gag, "the women—God bless them," is really standing for something before the whole world today. In England the war has been a great equalizer of the sexes. It will prove so here.

In this connection, the following thought, by Maud Wetmore, Chairman of The National League for Woman's Service, is worthy the careful consideration of men and women alike:

"The responsibility for improving our national life and fulfilling our national ideals should be evenly divided between men and women. And just as men must discipline themselves and prepare to carry their full share, so must women. Women must realize the interdependence of the individuals that comprise the nation; they must learn to think nationally, and in this period of stress they must recognize that they can afford to give nothing less than their best. Where women are needed to supplement the forces of men in the industries, those who are fitted or experienced must come forward and their home interests must be looked after by others. Our women must do everything possible to enable their men to give full service. In Detroit, for example, the league is encouraging its members to learn their husbands' business, so that when the man is called to take his place in whatever line of defense he is needed in, the wife may be able to maintain the family's economic status. Upon women rests the responsibility for maintaining the home standards."

Education.

According to Richmond P. Hobson, an analysis of the antecedents of 10,000 leaders in all the walks of American life, as compiled in "Who's Who in America," shows that the boy who stops school with the grammar school has only one chance in 9,000 in becoming a leader; the boy who completes high school has one chance in 400, while the boy who goes through college has one chance in forty.

The average American boy leaves school before his twelfth year. In

Germany every boy is required to go to school until he completes his sixteenth year, and he generally continues vocational night classes after that.

Prohibition.

The question of whether or not there should be complete prohibition is worthy of our consideration, as men who have had an opportunity to study working conditions at close range. Personally, I am in favor of cutting out whisky and the heavy and enervating drinks. With reference to beer, however, let me give you the opinion of Kennedy Jones, an English director of food economy, as follows:

"Whether the brewing of beer shall be stopped at once and the barley already malted used for mixing with flour is a question of policy and hinges on the point whether the malt in bread or in beer will secure the most efficient prosecution of the war. Unlike America, beer has been for centuries a part of the daily diet of our working classes. A great number of men engaged in very heavy manual labor—as for example, men working at blast furnaces—must drink considerable malt liquor. This is not only a practicable fact; it is a scientific fact. The bulk of these men are in the habit of taking that liquid in the form of beer. The question is not whether cold tea would be better for them, but what would be the effect on the output of work by suddenly cutting off their supply of beer.

"If it be found advisable to stop beer altogether—upon which point there is a considerable difference of opinion—it would be simple common sense to allow the workers time to adapt themselves to the change gradually, by a gradual reduction of the supply, rather than by checking or stopping the brewing of beer at once. Also it is well to bear in mind that if the worker is not deriving part of his energy, as has been his habit, from his beer, he may require more bread, so that practically no actual saving of bread could be effected.

"Moreover, we may well take a leaf out of Germany's book in this matter. That country—which again is unlike the United States in that beer is part of its normal diet—is in the matter of food now scientifically organized with a view to supplying its workers with a maximum of energy for the prosecution of the war. South Germany is still brewing 35% of its pre-war quantity of beer against our 27½ per cent, no one would suggest that the food situation in Germany has not been serious for the last twelve months."

The Engineer in planning to meet the labor requirements necessary for the enormous production required on account of the war, should be careful that in his plans he does not impose sacrifices on the part of labor such as longer hours or less pay, for while workers may be willing to sacrifice their last drop of blood for their country, **they desire to lay their sacrifices themselves on the altar of patriotism and not to have them offered up by others.** Labor, Capital and Engineers, will find that the co-operation between them and the unity of purpose so necessary to successfully conducting the war, will only be accomplished if each makes it a point to show the greatest consideration to both the others in their dealings with them.

We do not need the greatest army or the greatest navy in the world,

But we do need the greatest efficiency and the greatest contentment on the part of our people. Contentment and lazy living without efficiency would only lead to our own undoing. Efficiency without contentment, would in time, make us a race of human machines. We do not want them separately—they must be harnessed together.

Industry and the Government.

At this point it may be interesting to consider the relation between the government, industry and the people. Let us first take up the mechanism so far created to assist in co-ordinating these three factors.

The Council of National Defense was created in an Act approved on August 29, 1916. The Council consists of the Secretaries of War, Navy, Interior, Agriculture and Commerce and Labor. The purpose for which the Council was created is stated in the Act as "The co-ordination of industries and resources for the national security and welfare. To advise the Council in carrying out of those duties the law provides that the President appoint an advisory commission, consisting of not more than seven persons, each of whom shall have special knowledge of some industry, public utility, or the development of some natural resource, or be otherwise specially qualified in the opinion of the Council for the performance of its duties.

The duty of the Council is to supervise and direct investigations and make recommendations to the President and heads of executive departments as to the location of railroads with reference to the frontier of the United States, so as to render possible expeditions, concentration of troops and supplies to points of defense; the co-ordination of military, industrial, and commercial purposes in the location of extensive highways and branch lines of railroad; the utilization of waterways; the mobilization of military and naval resources for defense; the increase of domestic production of articles and materials essential to the support of armies and of the people during the interruption of foreign commerce; the development of seagoing transportation; data as to amounts, location, method and means of production, and availability of military supplies; the giving of information to producers and manufacturers as to the class of supplies needed by the military and other services of the Government, the requirements relating thereto, and the creation of relations which will render possible in time of need the immediate concentration and utilization of the resources of the nation.

The seven Advisory Commissioners appointed by the President are as follows: Daniel Willard, president of the B. & O. Railroad, chairman; Howard E. Coffin, vice-president Hudson Motor Car Company; Dr. Hollis Godfrey, president Drexel Institute, Philadelphia, Pa.; Samuel Gompers, president American Federation of Labor; Julius Rosenwald, president Sears Roebuck & Co.; Dr. Franklin H. Martin, of Chicago; Bernard M. Baruch, of New York City.

To handle their affairs, the Advisory Commission already has formed seven subcommittees with their chairman as follows:

First: Transportation and Communication, Mr. Willard, chairman.

Second: Munitions, Manufacturing, including Standardization and Industrial Relations, Mr. Coffin, chairman.

Third: Supplies, including food, clothing, etc., Mr. Rosenwald, chairman.

Fourth: Raw Materials, Minerals and Metals, Mr. Baruch, chairman.

Fifth: Labor, including conservation of health and welfare of workers, Mr. Gompers, chairman.

Sixth: Medicine, including general sanitation, Dr. Martin, chairman.

Seventh: Science and Research, including engineering and education, Dr. Godfrey, chairman.

Under date of May 9th, C. W. Gilbert said in the New York Tribune:

"But the realization that the country is not organized to accomplish results is coming home to many minds. Members of the government just below Cabinet rank openly talk of the need of a better organization. And men in the Council of National Defense familiar with the methods of the business world look with dismay on a vast mechanism that centers nowhere.

"That is what is the matter. There is an organization for making war, or for making ready for war, a vast organization that is growing daily with the creation of boards, but is an organization that cannot get things done. There is no direction given to its efforts. It is an organization without an effective head. It has many energetic members, but they have no definite and certain relation to each other. There are a variety of activities, many of them interesting and impressive, but they run along parallel lines and don't come together in any common center. The government hasn't a program intelligently framed and executed from above, but it has a lot of parts of a program being pushed upward from below."

These facts were confirmed by another paper whose editor I called up and talked the matter over with.

In speaking of the work of the Council, Richmond P. Hobson said:

"But what a pity the council was shorn of its fundamental nature by eliminating the legislative branch of the government."

Peter Clark Macfarlane in Collier's, March 10th, commented as follows:

"The greatest difficulty that I see ahead for industrial mobilization is the inevitable conflict between private energy and enterprise and the dull inertia of the bureaucracies at Washington. All these committees now have a certain official sanction, which means merely that the department heads are bound to listen to their suggestions, but not to follow them. The real danger is that the splendid work of American business genius may be half defeated through sheer official or congressional stupidity.

"It is one thing to get advice of experts and another to be guided by it. At the present writing some of the leading electrical engineers of the country are warning the Navy Department against putting an electric drive into its new \$19,000,000 battle cruisers; and so far the department has stubbornly refused to let the matter be reopened for even a brief congressional investigation. Undoubtedly the departments and Congress have to be educated as well as the manufacturers and the people.

One of the real needs of the moment is ably summed up by Prof. Albert Bushnell Hart of Harvard University, as follows:

"Go further, please, Mr. President. We demand for the post of Secre-

tary of War, the best, strongest, ablest man for that place that you can find within the forty-eight states, two territories, and numerous dependencies. Why don't you take a military man for this technical, complicated, military job? Why must a lawyer-mayor, however breezy, be the channel through which your directions as Commander in Chief of the American Army flow to the soldiers? Why don't you appoint the best, ablest, widest awake general in the army? The Secretaryship of War was not too good for General Grant.

"Could you not go outside your party, if necessary, in this time of stress and danger, as Lincoln did when he appointed the Democrat, Stanton, who had been very uncomplimentary to his President? Or could you not find some captain of industry accustomed to direct thousands of men, through trained department heads, who are full of enthusiasm for him, and still more for their work?

"So in the Navy Department. Please, Mr. President, give to your afflicted country the very best naval man in the United States, the most efficient, wide-awake, and positive Admiral, in service or retired, or a big steamship man, or at least a great lawyer accustomed to affairs on the largest scale. We have no quarrel with Secretary Daniels, or with any man who tries to do his duty; but the job is too big for any man of Mr. Daniels' previous training and experience. The ability of the Secretary of the Navy to command the confidence of the naval service and of the American people may make all the difference between a glorious victory and a crushing defeat. We have no margin to spare for educating Secretaries of the Navy. When you were President of Princeton University you did not appoint a journalist to be Professor of Engineering, or a chemist to be Professor of Political Science. Please, carry the same principle to the navy.

"And, oh, please, Mr. President, do use the experts of the country, the engineers and chemists, and transportation men, the bankers and manufacturers, the college professors, the school teachers, use everybody that can do anything to support the nation! Germany has done many bad deeds, but has taught the world that in this modern civilization it behooves every man, woman, and child to do his or her part for the common country. If we can learn that lesson of real, practical, serviceable love for country, then the United States will endure. Please, Mr. President, you have been a school teacher, teach us that lesson. And don't lose any time in preliminaries. The Scriptures say, 'Now is the accepted time—now is the day of salvation.'"

What we have got to do and quickly, is to so centralize power around our Chief Executive, as to demonstrate to the world, as England is so nobly doing, **that democracy can be as efficient as autocracy.** We must make our President see the necessity for a few strong, experienced and able men carrying the load with him. If we can do that, and it will have to come, there will be no more need for autocracy in the world, and it will die a natural death. The answer, however, is in a strong central co-ordination and control.

Roger W. Babson said recently:

"The fact is that there is a great waking up in industry. Employers are realizing that new ideas and radical changes are inevitable and they are turning to anybody who can show them the way to go. This is one of the most hopeful signs of the times. Really competent industrial service is now available and employers are taking advantage of it in increasing numbers."

The same kind of service that has been and is being rendered industry is applicable to government activities and it is to be hoped that the organizing engineers of the country will be able to exert a greater influence over its affairs.

In government affairs we must consider and recognize all the various phases of government work the same as a department is recognized in industry. In doing this consideration should be given to the following:

1. The chief interests should be represented.
2. A permanent manager of experience and ability, with sufficient salary to warrant continued service.
3. Work taken out of politics, with red tape eliminated.
4. A staff of experts assisting.
5. Supervision to see that the standards and provisions outlined are lived up to and progress made.
6. Legislation to be initiated by those departments and submitted for analysis or rejection.

England and Germany have both increased materially the efficiency of their war machine through the use of experts. To the New York Times, I am indebted for a brief analysis of the elaborate German organization, which should prove of interest to you, as follows:

"Under this law which is known to the English speaking people as the 'civil mobilization law,' there was set up in Berlin a new kind of war office. A soldier (and please mark this) was placed at the head of this new war office, but he was selected because of distinct achievement in the field of economic and executive effort rather than because of honors won in the command of armies. This man was Lieut. Gen. Groener, who had rendered conspicuous service in the organization of the War Food Office, of which Dr. Batoeki was the head. Having organized the food control system, General Groener was set to work to organize the labor and industrial resources of the nation, so that the maximum of munitions and war supplies might be produced at the same time that all the regular channels of industry and trade went on as nearly uninterrupted as might be."

This organization is spoken of as a two-sided organization, one being intimately connected with the military staff and other considerably more remotely. The article further says:

"It is on the war side showing the military staff that the most interesting glimpse of General Groener's organization is shown. This is the section labelled 'Chief of the Technical Staff,' which is tied to the office of General Groener himself, and at the same time to that of the chief of the military staff. The head of this technical staff is Dr. Sorge, who for years was at the head of the great Gruson works in Magdeburg, which are now a

part of the Krupp concern. Dr. Sorge is one of the great captains of industry of Germany. His acceptance of the post of chief of the technical staff is very much as if the head of the Steel Corporation, or the Harvester Company, or the General Electric concern should take a similar post under our government."

In our own crisis cannot you see Major Goethals, the builder of the Panama Canal, the soldier-executive, as Secretary of War; a man like Charles M. Schwab as head of a technical division, and Theodore Roosevelt as Secretary of the Navy?

There is still another thought worthy of mention in connection. The time will come when this war will be over; the entire world will rush headlong into peaceful pursuits, and a mobilization of trade armies will then take place.

Whether or not we muddle through, we are going to end up by being industrially prepared for war and we will have an efficient mechanism for carrying on the work. The point is this: Will we plan now, to make this mechanism permanent, or will we let it rust and fall apart after the war? From the standpoint of good organization, it would be wise to make everything we do at this time count for something with reference to the future.

We must be careful also that in our zeal to get the best kind of men for the national service, we do not impose unwise restrictions. The following editorial from the New York Herald illustrates what I mean:

If Eventually—Why Not Now?

"My son, aged twenty-four, unmarried, was graduated as an aviator from the Curtis School in Hammondsport, in July, 1914. He offered his services to our government just about a month ago. He cannot be accepted because he has not a college education."—"A Mother," in the Tribune.

Great Britain had such a ruling at first but promptly abandoned it as a hampering requirement. In others words, we must get out of clouds into a realm of the practical.

The Real Trouble.

The inefficiency met with in industry and in government is not so much that of the workers as that of the managements and executives who are responsible for directing the activities of subordinates. As Gantt well said in an article on "What Is Preparedness?"

"Without efficiency in management, efficiency of the workmen is useless, even if it is possible to get it. With an efficient management there is but little difficulty in training the workmen to be efficient. I have proved this so many times and so clearly that there can be absolutely no doubt about it. Our most serious trouble is incompetency in high places. As long as that remains uncorrected, no amount of efficiency in the workmen will avail very much."

The Efficiency Society of New York made an analysis some years ago, of the organizations of thirty-five plants, one of the conclusions being:

"Such being the case, and taking into account as a normal condition that the flow of influence in an organization is from the top down, it would seem evident that increased efficiency will be soonest secured by applying effi-

ciency principles initially to the personal operations of the managers, rather than to those of the workers, as has so often been done."

The Need of the Hour.

There has never been a time in our history when real statesmanship and efficient leadership was as necessary as in this crisis. Our real need is best expressed by the definition by Fenelon, of the real statesman, which applies equally well to the real executive whether in business or in politics, as follows:

"The real statesman while doing nothing himself, causes everything to be done; he contrives; he invents; he foresees the future; he reflects upon what is past; he distributes and proportions things; he makes early preparations; he incessantly arms himself to struggle against fortune as a swimmer against a rapid stream of water; he leaves nothing to chance."

Isaac F. Marcossen asked Lord Northcliffe why he fought so hard for a small cabinet to carry on the war. He asked Marcossen:

"Could twenty-three Lincolns run your government during the Civil War? Could twenty-three Grants win it?"

"No," replied Marcossen.

"Well," snapped Northcliffe, "there's your answer."

In this important matter of the adjustment, and relationship of the humans making up our complex industrial fabric, certain essentials, which have been developed after a long experience in business, are worthy serious consideration. Men and women from all walks of life are going to be mustered into the national service. This will make up one class of humans which will have to be trained. The other will be that composed of those who take the place of the ones who are on the firing lines or supporting them back home. To both classes the following will be found applicable:

We have found that the man with the highest type of initiative is the one who sees things to be done without being informed and who then delegates to others the task of doing the work. The man with the next highest type is the one who sees things to be done without being informed and who does the work himself. The next in order is the one which sees things to be done after being informed but who does the work without being told. We need not mention the fourth or fifth classes.

In other words you can measure a man's power in business by the extent to which he induces efficiency in others, with the least attention on his own part to the duties to anyone but his own. That this is a good business law is evident if you will consider that there is a limit to the amount of detail that a man can handle, but practically no limit to the amount of supervision that he can exercise, because he is then guiding others. Could Lloyd-George in England or Von Hindenburg in Germany be the powers they are in their countries, if they attempted to supervise and handle details at the same time?

It is, of course, true that a strong, powerful personality desires to do things himself, as he feels that he can do them better than another, and in a sense he may be right and there is no harm done, if he does not attempt too much. If he does, however, he not only limits himself in that he cannot

plan and scheme and do at the same time, but he failing to develop initiative in those about him and in time develops a force of "leaners."

I believe that we will all agree that no man knows what he can do until he has had a chance to demonstrate what is in him, nor is there a man who is not able to do more things than he believes himself capable of. We have time and again found a man of only average ability as a "leaner" developing unusual ability when given definite responsibility, with the necessary authority to get results or make way for someone who could.

Executives are sometimes prone to fall into the error of meddling with subordinates, to the extent of determining the manner in which details should be handled. The important consideration is to get the thing done—get the message to Garcia. If I send a man to New York, I do not care when he goes or how he goes, as long as he gets there at the appointed time. It's results which count—not excuses.

An officer reported to General Kitchener at one time that he had been unable to carry out an assigned task and gave his reason why. He replied:

"Your reasons for not doing it are the best I ever heard. Now go ahead and do it."

Imagine what happens to the imagination and originality of a man who has a brain of his own to constantly see things through the eyes of another, who in time accepts one conclusion after another, without giving the matter any particular thought. He becomes a machine, which is not fair to him, with the danger of at sometimes doing a wrong thing because he has quit doing his own thinking.

Our experience shows that the real function of an executive or department head are:

1. To exercise general supervision over the business of department.
2. To critically analyze results.
3. To put new problems before his men for their consideration, advice and action.
4. To criticize subordinates when results are not forthcoming, setting forth the reasons why.
5. To see that prescribed practice is lived up to.

In "The Pharaoh and the Priest," by Glovatski, are these words of the priest to Pharaoh, which is the best description of efficient adjustment and relationship that I have seen:

"Draw on the earth, O lord, a square, and put on it six million unhewn stones; they will represent the people. On that foundation place sixty thousand hewn stones; they will be the lower officials. On these put sixty covered with carvings; these will be thy most intimate counselors and chief leaders, and on the summit place one monolith with its pedestal and the golden image of the sun; that will be thyself."

The Engineer in Preparedness.

Everyone wants to help and the government and the Council of Defense have been literally deluged with letters and telegrams from people offering their services, plants and products; from societies placing their membership at the disposal of the government and from organizations with

plans for the solution of this or that problem. The government does not know what to tell these people, societies and organizations to do, nor will it be able to, until it has a more comprehensive plan than exists at present.

As Gilbert well said in the Tribune:

"The government hasn't a program intelligently framed and executed from above, but it has a lot of parts of a program being pushed upward from below."

Do not depend upon Congress to save the country or prepare it for proper defense. The lawyers and the politicians have no place in shaping our industrial foundation. Who then?

F. W. Lohran in the Times Magazine says:

"The aggressive employer is asking himself what elements can I bring into my business that will increase the output, reduce the cost of production, and at the same time raise the wages and earning capacity of my employes? In these days of great industrial stress it is necessary that this question be answered."

It seems to me that there is no one better fitted to answer this question than the engineer.

A man who had spent a year in the service of the Belgium Relief Commission said to Mr. Coffin:

"Do you realize that within ten years the engineers of this country will become the directing factor in its government?"

He went on to say that in the Belgium relief work, the engineers had worked things out on such a basis, that in one year, over one hundred million dollars had been saved to the Belgium Relief Corps.

With reference to the engineer, Mr. Coffin himself said:

"Who is there better fitted by technical training and by life experience for leading the way in this new era of Universal National Service than American Engineers? Will vision come to them? Will they translate vision into action—and will they do it now?"

In a letter I received from Mr. Coffin, he said:

"I understand that there is at present no national organization among the concerns engaged in your work, and would like to suggest to you that the needs of the moment constitute the best possible reason for initiating a national policy of this kind.

"I should think that the American Society of Industrial Engineers would answer the need discussed with you. You are, of course, the best judge as to whether or not there is already existing an organization through which the same result might be effected.

"Upon general principles I dislike to see organizations multiplied further than necessary. However, I have no doubt but that we shall have occasion to use the mechanism proposed."

The question now arises: Is there a need for an organization of Industrial Engineers and what can it do?

There is need for the Industrial Engineer in practically every branch of the work necessary for successfully conducting the war. Unfortunately the number of Engineers of proven ability are few, and they are but a small

fraction of the number required. The Industrial Engineer can accomplish little by his work in individual plants during the war for if all were employed, the ground covered would amount to little in comparison with the number of industries turning out war products.

While a man is limited, however, in the amount of personal work which he can accomplish, the amount of work that he can supervise, through a correct organization, is unlimited. The industrial engineers can best serve in this war by conveying through a proper organization, readily usable instructions as to the operation of their most successful methods of organizing and increasing production, so that these methods may be applied by plants throughout the country, with limited supervision.

Among the things the Industrial Engineers can do are:

1. List all available engineers and their special capabilities so that the Government can call on them when their special problems arise.
2. Determine in the plants with which they come in contact any products that can be dispensed with and any necessary products for the war which the same equipment can be converted to produce.
3. Determine all instances where male labor can be replaced with female labor.
4. Determine the necessary steps to provide proper working and living conditions for the large number of women who must be employed.
5. Determine the best means of rapidly training unskilled labor.
6. Determine the best means of reorganizing departments and simplifying operations so that unskilled labor may be effectively used.
7. Determine in the community in which they are located the means which it would be necessary to use, to put all plants on a twenty-four hour, full production basis.
8. Determine the best means to increase production and at the same time maintain quality.

The Need for National Co-ordination.

I believe that the same trouble I found in the studies which led up to my recent book, "Industrial Preparedness," applies to the industrial and engineering movements—too much individualism. Those in the lead are men of strong personalities, virility, dynamic power and driving energy, all of which makes for individual initiative and personal action. There should be some way, however, of harnessing these splendid characteristics, in such a way as to result in the achievements which would follow.

It is unfortunate that there are already so many societies in the country with so little being accomplished from the standpoint of real organization. With societies to promote this, for the prevention of that and for the advancement of some other thing, the wonder is that any real and lasting good can be accomplished at all. There are hundreds of societies at work all doing some good, but think of what could be done if there was some concerted action based on intelligent direction.

Engineering, if we consider it from the physical side, comprises mechanical, electrical, civil, chemical, mining, automobile and other branches. The

intelligent and efficient use of these branches for economic ends, constitutes Industrial Engineering. It should be obvious, therefore, that the Industrial group should be the factor which should correlate the work of the others, without their losing their identity or individuality. This would be the solution if it could be worked out in a practical way.

Hence, I believe that we should give the Council of National Defense an organization of industrial men who can perform the kind of tasks that their experience fit them for.

As you all know, there are three functions in the successful management of any undertaking:

1. The Executive Function.
2. The Planning Function.
3. The Performing Function.

In the matter of organizing for and carrying on this war, the President of the United States and his Cabinet constitute the Executive Function. The Planning Function is the Council of National Defense with its advisory commission and the various boards working with it. The Performing Function is the organizations, societies, plants and the people at large of the country. This latter function is a long ways from being properly organized; as we all well know. The difficulty with reference to the planning function, as analysis shows, is that it is an advisory proposition, studying and prescribing, responsible enough and made up of the best brains to be found, but lacking authority and the ability to get things done.

You can, therefore, see that a disorganized performing function, with a planning function vested with advisory and analytical powers only, seriously handicaps the executive function, and the marvel to me is, not that President Wilson has done so little, but that he has been able to do so much, under the conditions he has been forced to work. Drive the conviction home to him that he needs better organization and you would be unable to keep up with his speed in putting things across.

There is some talk of adding three cabinet ministers to the present number, they to cover Transportation, Food and Munitions. There are ten now. This will, no doubt, help considerably, but it still leaves unsolved, the bigger problem of correct relationship between the three functions.

In a letter to Mr. Coffin on April 23rd, on the need of National co-ordination, I said:

"Could you not lay this matter before President Wilson with a view of convincing him of the dangers of the well-meaning activities of the many different organizations, all lacking co-ordination and definiteness of purpose? Could not he sound the call for a 'get together' of the various organizations on such a basis that would warrant each one, naming its best man, to constitute a national organization?"

Possible Solutions.

After careful thought, and discussing the matter with big men interested in the work, I want to propose for discussion and definite action at this conference, or by this society, at the earliest possible moment, the very things which will avert a serious explosion in national and military affairs—

an explosion that President Wilson and the Council of Defense, while not responsible for it, will be unable to prevent.

1. Organize the American Society of Industrial Engineers, which is on the program for Saturday. Let all of us sink any differences we might have, and give the Council of Defense a real answer to Mr. Coffin's request, in the way of a strong, patriotic and able organization of industrial men.

2. Send President Wilson resolutions offering the services of this new society; outline its purpose and strongly urge him to issue a call to all societies to "get together" and form a national body, without destroying their identity.

3. Have the newly formed society offer its services to Dr. Hollis Godfrey, of the Engineering and Educational Section of the Advisory Commission, who is working in close conjunction with Mr. Coffin.

4. Let the new society get right down to "brass tacks," perfect its mechanism and co-ordinate its resources, so as to be ready for the big thing I will now propose.

5. Demand a national wide governmental investigation of all activities which have to do with war, both intradepartmental and interdepartmental, and with reference to the relation of the Legislative branch to the Executive branch and of the Advisory branch (Council of Defense) to the Executive branch. This newly organized body of engineers will be made up of men who are reorganizing diversified activities every day. Running a government and especially conducting a war is a matter of the proper use of good business principles. Who then is better fitted to make such an investigation than a society such as the one proposed.

6. Place the conclusions following such an investigation before the President or Congress, or both, with definite recommendations for giving the government a comprehensive plan which can be worked out, from the top down as well as from the bottom up.

7. Urge upon the leaders in Congress, the members of the Advisory Commission, and the President's Cabinet members, the absolute necessity for a strong central control of war activities, in the hands of a small number of men, either in the form of an "inner cabinet," or greater powers for a reorganized Council of Defense and Commissions under it.

8. Finally, take steps to assist in organizing a national body of such societies whose work would be a factor in this gigantic preparedness program.

Let the Executive Council of each society name a committee of three to five able men to work with its President; let each President become an incorporator, under the laws of the District of Columbia, of a society to be known as the "ASSOCIATED AMERICAN SOCIETIES." Let this national society select a President and an Executive Council and after dividing the work to be done into logical sections, covering definite functions, name a three to five man committee for each. This will furnish a real performing mechanism.

The President of this national society and his Council will be in touch with the Executive Function of the nation, as well as the Planning Function,

in the form of the Council of National Defense. The contact between the national society and any individual society would be through the President of each society and his committee, on through to the members.

After all, the problem is one of matching requirements against qualifications. The Council of National Defense will determine requirements. Somewhere in the country, in the form of materials, plants, machines, men and organizations, are the qualifications needed. A strong executive function would co-ordinate the two.

Conclusion.

I have already taken up too much of your valuable time and there are other good things in store for you. In conclusion I want to drive home the fact that the situation is serious and that the allies need our help at once. The future of this Republic is in your hands; it is for you to say whether autocracy or democracy is to rule the world; what you do will determine the fate of 980,000,000 precious souls. Ladies and gentlemen—WHAT IS OUR PLEASURE?

(Continued and prolonged applause.)

THE CHAIRMAN: Just a moment, please. It is customary in connection with the meetings to throw open immediately after the address, the meeting to general discussion. We are going to limit this discussion to twenty minutes. This meeting will close at five o'clock; it is now 4:40. I am quite sure Mr. Knoepfel will be very glad to answer any question that either the members or guests have to ask.

Mr. Knoepfel has sounded the opening gun for the conference in his masterful presentation of the subject to this Conference.

MR. WALLACE: Mr. Chairman: I would like to take the time to say that this is one of the most informing and striking papers I have heard in a good many days. I think that if this is the character of the papers that we will have throughout this Conference, we are going to make some history here in the next few days. I think the officers are to be complimented on being able to secure the presentation of such an able paper. I am very much pleased to know that it is going to be published, so I can study it at my leisure and get still more out of it.

MR. F. M. SIMONS, JR.: Mr. Chairman, I might say that at the Hotel La Salle today the British Labor Delegation are holding their headquarters. It seems to me it would be a very pertinent thing for this meeting to extend an invitation to that delegation to attend this conference. They have passed for a number of years through the very problems that we are entering upon here. Their presence here would be of very great service to us, and it would be at least a courteous thing to do to invite them to attend this Conference.

CHAIRMAN KESSLER: You have heard the suggestion, that an invitation be extended the British Labor Delegation to attend this Conference. (The motion was then put before the Society, voted on, and carried)

MR. A. B. SEGUR: Tomorrow morning in this room there will be a free for all discussion on the subject of "Influencing the Management," and we would like to have with us those who have any special publication dealing

with the management of their works or anything pertaining to policy and organization, or other matters which may be of a special interest to us, and especially to the country at large. We want to make these round-table conferences mean the very most to the Society and to you, individually, and to the country at large. We all realize of how great importance this question of national defense and of industrial preparedness is. The only way we can follow out the suggestions made by Mr. Knoeppel here, today, is to get together, and one great chance to get together is to come together first at these round table conferences.

MISS FLORENCE KING: Mr. Chairman, I represent the Women's Association of Commerce of this city. May I interrupt just a moment? I was so interested in your announcement regarding this Association, and while I come here as a stranger, I was particularly interested, in the first place, about the democratic policy which the Western Efficiency Society has followed, and believe I may be pardoned if I make a suggestion.

I have been so deeply interested in the paper that the gentleman has read this afternoon, and in your reference to the work that the women are doing in this great national crisis. I represent a body of women here in this city whom I know would be deeply interested, if this Society could find a place in its deliberations where the work that women will be called upon to do, and the responsibilities that they will have to assume, could be considered in connection with the other matters that you are taking up. We all know that greater responsibilities are being placed upon women today than ever has been done before. We know the preliminary work they are now doing, their willingness to serve in every capacity they possibly can; but I know from my experience with women how inexperienced they are in these things, how very hard it is for the wife to take care of the family with the husband away at the front. If she could have a little help and encouragement from an organization like this, I think you could perform no better service before you adjourn this Conference, than to give a little consideration to this, if you please. (Applause.)

MR. A. B. SEGUR: I would like to suggest again, since Miss King has spoken of the matter of the consideration of the women's problem, that that is one of the things for which the round table was first originated, to give expression to just such things as those which were not contained in the regular program. May I suggest again, that on Friday afternoon one speaker, Mr. W. S. MacArthur, will take up the work of the women, on the question of "Woman's Work in War Time," and as chairman of the round table I would like to again extend to the Woman's Association of Commerce, of this city, an invitation to attend those round table meetings and bring up those discussions.

MISS KING: Thank you.

MR. D. ULLRICK: I noticed that when we got the answer of President Wilson to the offer of our services, it was a stereotyped form, printed by the millions, I presume, and sent back to every organization that sent in an offer of their services. I presume it never got to Secretary of War

Baker, and he had no idea at all that it was an institution like ours that has offered its services.

It seems to me that the thing that is necessary is a sort of back fire. Now, the people, the societies, the organizations that pass these resolutions and offer these services, are likely to sit back and say, "I have done my part." "I have offered my services." And the people, the business men, the manufacturers and everybody else wonder why something isn't being done. The only people who can do anything that will reach the Secretary of War, as I understand it, is the Congress. This committee that we have down there, or commission, may advise, but they are helpless to do anything, because there is no provision for activity and for carrying out their advice. As was remarked, we have a number of lawyers and politicians in Congress; we have people there whom we have put into power and whom we would not think of putting in at this time, if the question of their selection, of sending them to Congress, were made an issue at this particular moment, but they are there. Consequently, while they are being deluged with the general form of communications, as we have personal contact with them, the thing to do is to use our influence and to send individual words or advice to them, as to what we have done in this respect, and try to get action from that side. On the other hand, we need to carry publicity to the general public, or knowledge, rather, of such things as we are doing.

We have got a lot of cheer this afternoon, by people who would spread the ideas we have heard here and make the body politic of this city aware of what we are undertaking to do. Democracy is a slow-moving element, and we must carry the ideas to the people, as well as to the powers above. Therefore, I think that it is well for us to go out of our way in order that we may get our neighbors to come here and make this a popular movement as well as an organized movement. All of us have got the same formal reply from the President, and will have the same sort of treatment. Our efforts will end where other efforts have ended, unless we do something bigger and broader than offer our services to the President.

As a practical suggestion I hope that we will have this matter of a centralized propaganda and effort in efficient methods and of purposeful action on the part of these organizations worked out until it finally breaks through. This is the measles that we have in this country; it is coming out in spots; it has got to reach the brain and head of the country, somehow or other. (Applause.)

MR. WALLACE: With reference to personal contact, there are a number of mechanisms that can be utilized in Washington. There are a great many people who are attempting to subordinate the activities of the political force. At the same time, Mr. Creston, Columbia University, who is a big factor in Washington, can take a big delegation from one or two societies, tell them what to do and where to go in such a way that you can get your line of contact so that the Secretary of the Navy will have to listen. But don't send just a resolution and letter, because they will reach the waste basket. The way can easily be paved for the Society to do that.

MR. RHEINFELDT: Mr. Chairman, democracy is the organizer; let's

do it now, in regard to the Industrial Engineers' Organization. I move you, Mr. President, that a committee be appointed to draw up a rough draft of this organization of Industrial Engineers.

CHAIRMAN KESSLER: Mr. Rheinfeldt, in that connection I am going to call on the Chairman of the Executive Board Conference, who can answer you.

MR. BERNDT: Mr. Chairman, as regards the executive committee, this committee has already been authorized by the Western Efficiency Society to go ahead with the plans. We are from day to day, as we find response among the delegates of the different societies, adding to this committee, and we are going to hold a preliminary organization meeting next Friday morning, so as to have the plans ready for Saturday. That is the present program. Mr. Knoeppel has already consented to act on that committee, and we are hoping—this is rather embarrassing—but we are hoping to get Mr. Emerson to act with us, and we are hoping that every day as more of the men come to the Conference that we will finally get the co-operation of all. That is the present plan. And it would seem a practical plan as well. We are holding conferences, we held a conference this morning, one yesterday afternoon, expect to have another one this afternoon, and we are hoping gradually to work up to the final development Friday morning, and then throw the whole thing open for discussion on Saturday.

I would like to say this: That Mr. Knoeppel has seen the possibility of the affiliation of industrial engineers simultaneously with the Western Efficiency Society. It is a definite fact that the possible organization of The Society of Industrial Engineers came with this Conference as a result of the plans for the Conference, and Mr. Knoeppel was working from his end, and it was very fortunate that we got together. We feel that many of the other men who are going to be represented on the Conference program have probably seen the same possibility and there is very little doubt in our mind but that we will have the co-operation of all before Saturday for this democracy is not working slowly. (Applause.)

SECOND SESSION

Wednesday Evening, May 23, 1917

THE PRESIDENT: We were sorry at a late hour tonight to learn that Mr. Leon C. Marshall, of the University of Chicago, who was to be Chairman of the meeting tonight, is sick. We are fortunate, however, in securing the services of Mr. Harry Franklin Porter. Mr. Porter has been the editor, or rather connected editorially with the System Magazine, the Factory Magazine and the Engineering Magazine. He has also been a lecturer in Industrial Engineering at the University of Illinois and at the University of Michigan. During his residence in Chicago Mr. Porter was one of the most active members of the Western Efficiency Society. At the present time Mr. Porter is in charge of the development of standard practice for the Detroit Executives' Club. Mr. Porter. (Applause.)

MR. HARRY F. PORTER: Mr. President, Ladies and Gentlemen, After this rather embarrassing introduction I will now proceed as befits a chairman to extinguish myself as quickly as possible and be true to my name, the porter at the door, merely to allow the distinguished gentlemen on the program to reach your attention as soon as possible. I do, however, want to take just one or two moments to emphasize the importance of the subject of tonight's conference. I think all of those who have had contact with the management realize that the biggest problem after all is to educate the management. As the speaker of the afternoon, Mr. Knoeppel, pointed out, information travels from above down, and therefore you have got to reach the men at the top. The dominating mind they have got to see the vision of this thing, see the importance in connection with this whole conference with the human factor before you can bring the right policies and the right measures into action, into port. So, then, the subject of educating the management to the importance of the human factor, I consider one of the big subjects, one of the biggest things, the conference could address itself to. There are two problems before us. One is to reach the managers we now have, no matter how they got their positions, whether they came in through the cabin or through the forecastle; the other is to rear up a generation of young men technically trained, with the proper viewpoint, so that when they do get in the position of command they will have the proper appreciation of these various problems, and, above all, with the human factor. With that brief prelude it seems hardly necessary for me to say much in introducing the first speaker, he is so well known to all of you. My prediction is that Harrington Emerson will go down to posterity as the pioneer, as the greatest teacher and inspirer of thought along efficiency lines, that this generation has produced. I know he has been a source of great inspira-

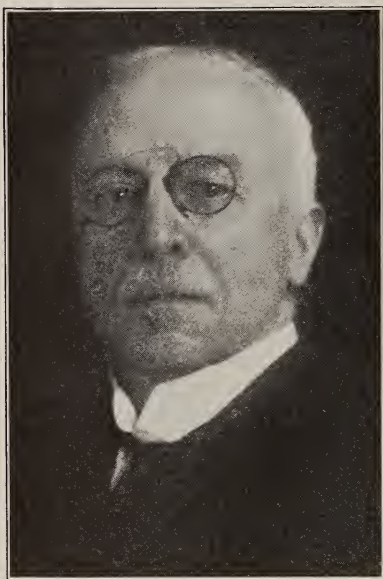
tion to me. It was his article on the Twelve Principles of Efficiency in the Engineering Magazine that drove me into the movement, and I am very glad to be here tonight to tell you about the effect of those teachings on me, and it is a source of great gratification to me as I go around the country and mingle with managers, to see the philosophy that has so ably been expounded by him in times past bearing fruit all along the line. I take a great deal of pleasure and esteem it a high honor and privilege to introduce Harrington Emerson. (Continued applause.)

"EDUCATING THE MANAGEMENT TO THE IMPORTANCE OF THE HUMAN FACTOR"

Mr. Harrington Emerson

Ladies and Gentlemen: There are truths learned in youth but not realized until old age approaches. When I was a young man I heard the maxim that young men were for war and old men for counsel. It never came home to me so much as this afternoon when I gathered in this room with these active, vigorous, intelligent young men of the Western Efficiency Society and when I realized with sadness that my days for war are over, and that what remains to me is chiefly the function of counseling. Kipling in one of the most splendid stories he has written tells of a Brahmin who, obeying the old law, was for twenty years a student, for twenty years a soldier, for twenty years a statesman, and then the halls that had known him knew him no more. He went out from the palace gate a beggar with the begging bowl, and the yellow robe. The former statesman whose favor kings had sought was lost on the great highways of India. He gave the balance of his life to thinking and reflecting about the eternal verities and not to the consideration of the little affairs of men. But that same division of life occurs for all of us. For twenty years we are children, learning; for twenty years we are in active life and doers; for twenty years, if we progress as we should, we are executives; and then when we reach three score, if we have done well, we can pass over and take our place among the counselors.

It is only recently that we have come to recognize the very great difference in value between different kinds of materials and different kinds of equipments and different kinds of men. If you go back into the oldest days, you find that precious stones were considered the most valuable form of material. A diamond, a ruby, was many thousand times more valuable than a piece of copper, but today we have materials that are immeasurably more valuable than anything that the ancients ever dreamed of. A pound of radium, if we could collect a pound of radium in all the world, would be worth \$5,000,000. Similarly with equipment. We do not hesitate to spend half a million dollars in making a telescope to explore the recesses of the universe, but when it comes to man, the difference is far greater than that between one piece of equipment and another, between one kind of material and another kind. I was reading in one of your papers today that the loans made by the Allies had amounted thus far to \$42,000,000,000, and yet even



HARRINGTON EMERSON

before the war began I tried to estimate the value to humanity of the man who discovered the hook worm and evolved the method of checking its ravages. This one man brought additional possibilities of wealth into the world amounting yearly to \$20,000,000,000, so that the work of that one American physician, whose name I do not even recall, is capable of adding to the world in a single year, and in every year for all time to come, half as much in value as all the Allies have spent to date on this great war.

The topic which I am supposed to speak to you upon is that of educating the management.

Just fifty years ago I entered a very strict school. It was the first time that I had gone away from home. This school had three principles of classification of the students: age, for living; capacity, for study; strength, for play. We were assigned to our living group according to age, so that my nearest room companion was a boy who happened to be born on the same day, the one on the other side of me was two or three days younger, and so in our daily lives we were grouped according to age. But in our classes we were grouped according to past training, so that two boys who lived side by side in their daily lives, because of the same age, one might be in the first class in history but in the last class in mathematics, and his nearest room companion might be in the first class in mathematics but in the last class in history. In our games I was matched against the boy, not of equal age or equal capacity, but of equal strength. We lived with our age mates, we studied with our brain mates and we played with our physical mates.

The result of this three-fold classification was that they got a great deal more out of us in this school than any other school I ever knew in my whole life. They did as much with us and to us in eighteen months as is usually accomplished in four years in other schools. It is true that they kept us at it fourteen hours a day for 365 days in the year, but the results were worth it. Ten years later I was myself a teacher in one of our younger western state universities and in my first year all sorts of students flocked into the class, and I gave 90 per cent of my time and effort to 10 per cent of the students who were utterly unfit to be in that class, and I gave about 10 per cent of the time to the few students at the top who were most deserving of attention. When the second year came around I changed all that. I didn't allow anybody even to enter the class who could not show a certain amount of aptitude for the subject, a proper preparation, so I excluded all those to whom in the first year I had been giving 90 per cent of my time, and I concentrated 90 per cent of the time on the students who really repaid the attention. All this occurred forty years ago. Quite recently I was much gratified to receive a call from three of my old students I had not seen for thirty-five years. One of them was a judge, another was one of the most successful New York bankers, the third was the mother of grown and successful children. When they saw me they began to recite the lessons that I had taught them forty years before. They said, "You pounded those lessons into us and we never have been able to forget them, and we can't look at you now without immediately wanting to recite." (Laughter.)

In one of my vacations I went to the fossil beds of Wyoming and Utah and there I came in contact with the work of the great Scotch geologist, Geikie, and with the works of other great geologists who had been then collecting fossils and making a study of palaeontology, and there I learned that if you discover a piece of horn of some fossil, you know at once, even though you only have the one piece of horn, that the animal had cloven hoofs, that it had certain kinds of teeth, that it had a certain kind of stomach and digestion; the hog has cloven hoof but no horns, but every horned animal has cloven hoofs. From a tooth it is possible for a palaeontologist to reconstruct the whole animal. I remember a story of some students who wishing to frighten a professor, dressed up as devils and broke into his room at night. When he woke up he saw these figures with horns and cloven hoofs and a fierce face and a tail. The professor said, "Horns, hoofs, eat grass—they can't harm me." (Laughter.)

All of us can see the difference between a bulldog and a greyhound. We know that the bulldog has determination, steadfastness; we know that the greyhound has speed. Recently I listened to a lecture which gave me a great deal of satisfaction. The lecture was illustrated by the skull of an old man who was supposed to have lived 300,000 years ago. The jawbone was much heavier than in the modern skull, the attachments for the muscles were very much wider and larger, so that it was evident that this primitive man had very strong muscles. He was a wild beast of a man and because our ancestors half a million years ago used to bite and hold on like bulldogs, we today are sending millions of pounds of chewing gum to the soldiers abroad so that when they go over the top or are suffering agony from wounds, they can manifest and increase their determination by clinching their jaws on the gum. In former decades British sailors, when being flogged, always bit on a soft lead bullet so as to stand the torture. One of my stenographers said he used to watch me and he thought I was chewing gum. I wouldn't dare go home if I did chew gum. (Laughter.) He got the matter wrong end to. He saw the jaw muscles moving and he said afterwards, when he got the manuscript, he perceived that I had been "going" for somebody, I had been trying to "put something over," I had been clenching my physical jaws on mental or moral opponents. When you see anybody with strong muscles over the lower jaw it is an indication of stick-to-it-iveness, or of steadfastness, or of reliability, because in the long past the men who caught hold with their teeth and held on developed the habits and the characteristics of steadfastness.

A number of years ago I was at Battle Creek for the first time, and I met there an old doctor who told me that from a single tooth he would be able to tell the sex, age, the color of the hair, and the general disposition of the person to whom it belonged. I tested him out and I found that he was able to do it, but I didn't take the lesson to heart. I thought he possessed some kind of uncanny second sight, some mysterious gift which others lacked. I did not realize that there might be others as skilled or that even I might also learn. Yet it would have been of immense advantage to me if I could have taken him as counselor to advise me as to the selection of business associates and employees.

About the same time I was reading Francis Galton's works and he explained why it was that in South Africa they have these many spans of oxen in front of a single big wagon. You may all remember that in the early geography you studied you saw those pictures of a big wagon of immense size—almost the size of a freight car—and the long span of oxen strung out in front of it. Even as a boy I realized that life was cheap in Africa, and I wondered why it was they had so many oxen on one big wagon instead of having fewer spans and many wagons. Francis Galton says that an ox willing to go ahead into the jungle where he may meet lions is exceedingly rare. What the ox wants to do is to force himself into the herd. He saw oxen who when outside of the herd showed every evidence of suffering, of misery, but when they horned and hoofed their way back into the center of the herd they were beautifully happy and satisfied. Why? Because they knew that they were surrounded by other oxen and if the lions or the leopards attacked it would be the other oxen who would be hurt.

Most oxen are born pacifists. When there is any belligerency they want to be neutrals. The bull is different. I would rather be a bull than an ox.

The problem that confronts the Kaffirs is to find oxen with initiative, for none others are fit to lead. So the Kaffirs watch the little calves, and if they see one that goes away from its mother forty or fifty feet to investigate some plant or to pick up a leaf, they immediately pick it out and begin to train it, and the oxen that become the leaders of their long spans are selected in this way. There are so few that a single span of leaders will be worth all the other forty oxen put together.

Between 1895 and 1912 I tried out thoroughly the old method of selecting friends and associates and employes; namely, by accident, expediency and recommendation. All three methods very poor, recommendation being the worst of the three. I did actually divide people into two classes, with the devil's choice between them, the competent scoundrels and the incompetent goody-goodies. In this part of the world there is a large middle class fairly competent and also fairly reliable, but on the Yukon when I was there I found the scoundrels who had to leave this part of the country, seeking a new home, a new place of adventure, and I also found the ne'er-dowells who could not succeed in this part of the world and had been sent up there as a last hope.

The Yukon was a region of extremes, and when it came to making a choice, I always chose the competent scoundrel in preference to the incompetent goody-goody, because at least there was some chance of getting there with the competent scoundrel, and there was none at all with the other fellow.

Until recently, West Point and Annapolis had perhaps the best method of selecting men practiced anywhere in the United States, but basically the first start was wrong, because the cadets were nominated by Congressmen, and perhaps out of a district with 5,000 young men in it, only two or three would be nominated. But out of those they were very careful to select those who were physically fit, mentally fit, morally fit, and the result was

that they secured a very high class of young men. A number of years ago we were counselors to a large industrial plant not very far from Chicago, in which one of the chief troubles was the great turnover of the men. The loss of 100 per cent of their men in a year—that is, for 2,500 men they would have to employ 2,500 new men in the year—was a serious one. It was the chief difficulty, one of the first difficulties about the operation of that plant, and for the first time I really realized that it might be more important to better the men rather than to better the machines. Then I remembered that the class of men in the United States who have done more in initial selection, who were earlier in the field and carried their plans further than anybody else, away ahead of employes, away ahead of doctors, away ahead of the professors, were the race-horse men. Fifty years ago a race-horse man wouldn't race a horse unless he knew it was pedigreed. He wouldn't dare trust an animal that didn't have renowned grandsires and granddams. What did the race-horse men do? They first selected the pedigreed animal even before it was born. They next carefully gave it the proper environment. After it had developed under the proper environment they gave it the most careful training and attention, provided it had shown the proper kind of aptitude, and then came the experience of the actual race-track, and on the strength of demonstration the horse finally acquired value. They applied to the selection of race-horses all the methods that we now realize are those that ought to be applied to the selection of employes.

Incidentally it was the race-horse men who first used the stop-watch and made time studies, who first used photography for motion studies. The first photographic moving pictures ever made were of race-horses, in order to analyze the movements of their legs. It was also race-horse men who standardized equipment (harness, shoes, sulky) and also standardized distances and tracks.

It is only recently that we have begun to study and to teach managers. There is only one manager with whose life I am intimately acquainted and that is myself, and perhaps what I can tell you of my own experiences will have, for the younger men, more practical value than a theoretical essay. I am telling you younger men what I learned late in life that you may apply it while you are still young and thus escape the mistakes I made.

From these experiences of my own and of others you will see why it is that I believe:

- (1) By fitting the man to the social, mental or physical grade for which he is qualified and then developing him by the strictest discipline.
 - (2) By observing the physical makeup and recognizing the mental and social traits that are indissolubly bound in with the physical as steadfastness with the strong jaw.
 - (3) By watching inherent aptitudes and getting a position in which they are useful.
ence combined to fit for a particular task.
 - (4) By using heredity, environment, training, education and experience.
- students of this subject have polarized into three schools and each one But instead of being willing to use all methods of ascertaining fitness,

denounces the other as being unorthodox. There is first the psychological school, then there is the school that relies on mental and physiological tests, and finally there is the school that relies on observation. The psychological professor, if he wanted to find out whether you were honest or not, would count the beats of your heart while you were reading a letter in which perhaps you were accused of dishonesty. If the heart beats were accelerated, he would conclude that you were indignant at being accused of dishonesty, and that therefore you were an honest man. (Laughter.) This method has its value undoubtedly. It is the modest girl who blushes a great deal. The trouble about this method is that you can't always put this mystery machine on a man's heart or on a woman's heart when you wish to find out whether he is honest or whether she is honest. It is therefore difficult of application.

The second method is to give the man a number of questions. In answering them he will inevitably reveal whether he is honest or dishonest. I remember a question of that kind that was once given to some of my young men. They were asked whether if the wife were about to die and the only way of getting the money to pay the doctor was to steal it from the bank in which they were acting as cashiers, would they steal the money? If the young man said, "Yes, in an emergency of that kind, if I couldn't get the money in any other way, I would take it," it was immediately realized that the young man's principles as to honesty were not so fixed as to be unshakable.

The third method is to look the man in the eye and decide immediately whether he is honest or dishonest. The great advantage of this method is that it can be applied always and everywhere with the very least amount of trouble, and while I am not skilled myself in its use I think it is infallible when applied by one competent and trained. It is particularly applicable to strongly marked characters. It is easy to distinguish black from white, the criminal from the high-class man. It is not so easy to distinguish and characterize the colorless greys, the mediocrities.

We have found in our own classes that there are some twenty to twenty-four screens by which men can be tested, and if a man has passed through all those twenty-four screens, there is very little possibility of his not fitting into the place for which he has been selected, and some of these screens are so obvious they would scarcely occur to you. I shall go down through them. The very first thing I ask myself about any particular work is whether it should be done by a machine or by a sentient being. Very often the answer is, this is work that ought to be done by a machine. This cuts out immediately the sentient being, whether animal or man. But if the answer is sentient being, then the next question is: animal or man? Some jobs are better done by dogs than by men; for others mules are very much more valuable; for others horses; but suppose that you finally decide it is a job that requires a man, and we generally want a man, not for muscular strength, but for supervising intelligence. The next question is that of age. The age limits may be wide, as between 14 and 70, or they may be tightly drawn, as between 21 and 31, or still closer, as between 21 and 25. The next screen is that of sex. There are an immense number of occupations for

which one sex or the other is suited. The fifth screen is that of race. I remember once sending an assistant who belonged to one of the highest and leading families of Japan into a machine shop in Bridgeport, but I had to withdraw him, not because he wasn't skilled, not because he wasn't a gentleman, but simply because the Americans said that they wouldn't have any Japs in the shop. In this case, owing to narrow ignorant prejudice, race was a barrier to the employment of a man who might have had all the other qualities required.

Nationality is the next screen. There are certain occupations for which I would prefer an Italian; for others Frenchmen would be very much better, cooking, for instance; and others in which we would want an American. Heredity is the seventh screen; other screens are—(8) eugenics, (9) past environment, (10) mental condition, (11) physical condition.

I was recently tested at Battle Creek as to physical condition. One of the interesting tests was with a muscle machine of which only a few are in existence, one at Battle Creek, one at West Point and one at Annapolis. This machine revealed every weak or deficient muscle. Suitable exercises can be devised to correct the weaknesses. Undoubtedly something can be similarly done to correct mental and social weaknesses.

(12) moral condition, (13) industrial condition.

Now we go over these same four qualities again with reference to the aptitudes. A man may be perfectly sound mentally, but what are his peculiar mental aptitudes? One man has one kind of an aptitude, and another man has another kind of an aptitude. In both cases the man is sound, the man is good, but there is a difference in aptitudes. What are the physical aptitudes? One man has one kind of a physical aptitude; for instance, we might say wrestling; another man has the physical aptitude for running, jumping, playing baseball. What are the moral aptitudes? Two men may be perfectly moral, but in different ways. One has moral aptitude in one direction, another a moral aptitude in a third direction. What are the industrial aptitudes? We finally take up his training, education, experience, temperament and his demonstrations.

When a man has been put through all those different tests, why, we know that we can fit him to the right place. Recently we wanted to find a man for a rather commonplace job, in connection with some railroad work, and we put an advertisement in one of the large New York dailies. We mentioned that we wanted a young man, American born, between the ages of 24 and 26, a college graduate, technically educated preferred, willing to leave home at a stated salary. That advertisement was read by 180,000 people and naturally its wording cut out all the foreigners; it cut out all women; all men below 24 or over 26; it cut out all those not college educated; it cut out those that were not technically trained, those who were not willing to leave home. Finally it cut out those who already had better positions. Then we asked for photographs and when they came we had 360 photographs and in a single afternoon we were able to examine 350 of those and reject them, bringing the choice down finally to ten. When a man sends in a photograph and he is trying to make a good impression, and he has a cigar

in the corner of his mouth, and his hands in his armpits, and his feet up on the table, you need nothing further. (Laughter.)

Tact is a very valuable quality. Such a man might have had all sorts of good qualities, but he didn't have the one essential, and it is a very curious fact that the essential things are not those usually specified. Tact in a cashier may be as important as honesty and more important than accuracy or rapidity.

When we want a good accountant, accountancy is the very last thing we test the man for, not the first, because what is the use of getting a good accountant who is dishonest or getting a good accountant who is quarrelsome or who is disobedient? The qualities that we have first to pick out are those of honesty, of amiability, of obedience, and if we find that kind of a man or a number of men of this kind, then we select the man who in addition has the qualities that make him a good accountant.

In the period in which we now live, it is of enormous importance to the United States to have the right men in the right place, and what I want to urge on you going out into this great world conflict as advisors, as directors, as guides, as helpers, is that you should call the attention of that great manager, our Government, to how easy it is to apply certain tests, elementary tests, that will enable us to avoid the terrific mistake of taking the wrong kind of material for these positions on which the lives and the future of so many of our young men will depend. (Applause.)

CHAIRMAN PORTER: After having heard this truly masterful address of our distinguished friend and counsellor, Mr. Emerson, I think we are well prepared to pass on to the second phase of the evening's program under the general head of "Training the Future Generation," which will be set forth by three gentlemen, one representing the viewpoint of the school, and the other two presenting the viewpoint of the large industry who recognize this great problem and who has organized itself efficiently to solve it.

The first speaker of the trio is Dean Willard E. Hotchkiss, of the School of Commerce, Northwestern University. Northwestern University has been one of the pioneer universities to recognize the importance of trained scientific administration, and has done its bit to prepare the future generation. It gives me a great deal of pleasure to introduce to you Dean Hotchkiss, who will talk to you on the "Function of the Educational Institution." (Applause.)

TRAINING THE FUTURE GENERATION-FUNCTION OF THE EDUCATIONAL INSTITUTION.

Dean W. E. Hotchkiss.

Mr. Chairman, Ladies and Gentlemen, We are living in a time when it is of the utmost importance that we do things in the present, when it is of the utmost importance that each of us do the thing that we are best equipped to do, and that each of us do that thing in such a way that it will be properly articulated and co-ordinated with what the other man is doing. That matter of co-ordination and articulation of the work of many men, many organiza-

tions and many agencies, within the next few months is going to determine to a very large extent whether we shall do our work well or ill, whether this nation, shall do the great tasks before it in a way that will reflect credit upon not only the moral spirit and the moral purpose, but upon the efficiency of this nation.

There is no question about the great moral impulses that lie back of democratic government, whether it is represented in this government, in this country, or in other countries, but there is a question in the minds of a great many men as to whether democratic institutions in the great final test of force which we are undergoing at the present time, can pull themselves together in such a way as to put forth a thoroughly efficient effort in the cause which they have undertaken. Under those circumstances it may seem just a little bit beside the point for us to stretch at this particular time the question of the training of the future generation. It may seem that perhaps we could be better occupied at the present moment to see what we can do with the people who are trained as they have been trained in the past to get the largest measure of efficiency, but I think if we look beneath the surface we will see that perhaps the sort of things we are going to develop in the generation that is about to begin its work, may give us some clue as to the kind of qualities which we can attempt to seek out and to get into persons where they will function to the best advantage in the present emergency. So that I think it is not entirely beside the mark for us under these circumstances to be trying to find out what it is that we are aiming to do with the generation about to begin its work.

When your Program Committee asked me to appear here this evening, I realized that there was not time enough to devote very much attention to the working out of a speech, and it seemed to me that the best thing that I could do was to try to lay before you in as sincere a way as possible what I might perhaps describe as the faith that is in me concerning the work which a university ought to undertake in the direction of the training of general managers and executives, because it seemed to me that while the universities will inevitably be occupied in training men who will go into expert positions where they will be under the direction of executives, that the ultimate aim is to make the university men ready to pass on from the positions where they will be under direction to the positions where they will be doing the directing themselves.

The training of experts, therefore, specialized experts, I regard as an intermediate stage, perhaps a by-product of what the universities ought to be doing.

When we ask the question what the universities can do in this connection, we have to consider first what is the nature of the responsibility of the university in the undertaking of this kind of a task. I am not going to delay the discussion very long to elucidate that point, because it seems to me that you will all agree that fundamentally the obligation of the university, whether it be a university that is supported by taxes, a university that is supported from the income of the endowments, or a university that is supported by student receipts, the fundamental obligation of the university is

to the great general public. Their obligation is to train men who, while they are effective in earning their living and developing in their particular line of work which they will undertake, at the same time will be effective citizens of the great republic. The university in its professional forces, I take it, as in its industrial forces, has that fundamental obligation to train men who are going to be citizens, effective citizens in business, citizens doing a particular kind of work, but citizens who recognize the obligation for citizenship, so it does behoove us in attacking particularly this question of human relations in business, to consider the welfare of the state, the welfare of the state not only in periods of great emergency like this, but the welfare of the state in the ordinary limitations of business. I shan't undertake to demonstrate that point because I do not think it needs demonstrating.

The second thing, it seems to me, that we have to consider in discussing this question of the work of the university, is the question: What is a university equipped to do? Not only its responsibility, in what direction does the responsibility lie, but what fundamentally has the university to do and to do effectively? What can it do perhaps in a better way than it has done after the young man who goes to the university has gone out in business? What are the limitations upon it with reference to conduct, what are the things that can be bettered after the student leaves the university? And I, for the purpose of system, have grouped the things that I want to emphasize as within the scope of university work, under three headings. The first of these things, which, it seems to me a university is equipped to do, is to train its students to the significance of scientific method as applied to business data. I think the whole definition is essential, scientific method as applied to business data.

Now, we do in all of our universities furnish students some opportunities to get a training in scientific methods, whether they take courses in business administration or not. A student goes through a chemical laboratory, and if he doesn't get something of the nature of scientific methods it is his own fault, but there are a great many men who have a great deal to do with the use of scientific method in a university, and who are looking forward to a business career, and who at the same time never realize that this scientific method that they are getting in the university in these courses in chemistry, physics, and biology, is a method of application which can be used in the solution of business problems. For that reason I think it is only essential for us to give our students instruction in the course of scientific instruction, which, I think, it is necessary for us to render in the application of scientific method to business data, so that when they go out they will have formed a habit of mind so that when they undertake to approach a complicated mass of data, a lot of information, or to decide how a particular piece of work is to be done, who is going to do it, how a particular department is to be organized, that they will instinctively proceed along the right line, that they will see both sides of the equation and do away with all disturbing third factors until they get the things they want to know in such a way that they can analyze their problem from the standpoint of the most



W. E. HOTCHKISS

fundamental factors. If a university is not equipped to train students in the essentials of a scientific method of analyzing data, whether that data be business, or whatever it be, that university is not equipped to do anything, so that I would put down as the first thing which a university is equipped to do, the installing in a student's mind of a respect for a scientific analytical method of approach to problems, so that he instinctively will go at his own problems in that way.

The second thing, it seems to me, that a university can do, is to develop an appreciation of the importance of the human relations aspect of business. We are dealing tonight with this subject of human relations, but we haven't always emphasized that particular point. I remember when our own school of commerce was established, that we were talking of a business in terms of banking, transportation, insurance, accounting, but in terms of the great departments into which business was divided. We had a departmental view of our problem. We began to realize that if the universities were going to do anything worth while in the field of business education they must get at the real problems of internal management and organization and not confine themselves merely to the problems of the great outlying and underlying business fabric of the country; that they would have to find out what it was that was being done in specific business concerns, what are the different kinds of work that are being done in a business establishment, whether that establishment be a railroad or a factory, or a mercantile establishment or what it is; and when we began to approach the problem from that standpoint of internal organization and management, we saw that our proper line of division was not the department but rather the functioning. We came to a functional as distinguished from a departmental organization of our problem, but still for a number of years we laid the emphasis in our functional viewpoint upon the handling of materials, upon the maximum of business. We had what the colonists called a mechanistic idea of the problems in business, and we passed very lightly over the question of human relations. Today I think we are coming largely to see that the essential problems of efficiency for the years to come are going to be primarily, not the problem of handling materials, while those are important and we must handle our materials in an effective way, but the essential problems that will determine the efficiency of the business man of the future generation, are problems that have to do with human relationships; relations to customers, relations to competitors, and relations to neighbors, relations to business associates, and finally relations to the state. It is not necessary for me to go on and state and there is not time to go into the ramifications of these various kinds, the kinds of human relationships, but you can see that we are right up against that problem at the present time.

What are to be the various kinds of relationships that will be developed here in connection with this specific problem that we have before us, of carrying on this war efficiently? I am just going to stop for a moment upon this one, namely, the relationship to the state. That is where we have made the most conspicuous failure up to the present time in our business organization in this country. Some of us who are interested in this problem from

the standpoint of university education have looked forward with a good deal of impatience to the slow and tedious process of solving this problem in an effective way, through the education of the future generation. It is a matter of a good deal of encouragement that alongside of the many hardships and great suffering that will come out of this war, that probably we shall actually make progress in solving this question of the relationship between business and the state, one of the great fundamental relations, more nearly, as a result of this war, than we otherwise should have done.

It has been my thought in studying this question of the regulation of business, that we are losing a tremendous amount of energy, due to the lack of effective co-operation in normal times, and if we could work out, if we could encourage the various trades and organizations to organize into forces which are concerning themselves with the problems of their particular line of thought, and not only to do that, but to study the relationship of their particular work to these problems of regulation, realizing that it is the function of the government—always must be the function of the government—to set the minimum standards as to what kind of regulation shall be placed on their various lines of industries. The details of much of this regulation could be worked out by the men who are closest to the business, that once they recognized that it was natural that there should be some organic relationship between business and the state, and that it was going to be worked out for good or for ill, and they would come into court in such a way as to convince everyone of their sincerity, so that the people who are interested in this problem of regulation would see that they are not trying to “put something over” but that they were honestly trying to get the most efficient sort of relationship developed, that we should make progress very much more rapidly than we had in the past.

There has been, of course, in the past a tremendous amount of mutual suspicion, that has kept the better type of representatives of the government from approaching business men on one hand, and has prevented business men from approaching in a free and open way the representatives of the government on the other. We have simply got to accelerate that process of coming together in this junction. The problem cannot be solved in any other way. I have been thinking along these lines, and it is a matter of gratification that we do seem to have, if all of the chaos which unquestionably is abroad with respect to these questions, we do seem to have the stage setting, getting ready for some sort of a crystallization of these various activities and organizations for a work, an articulation, in a way that I do not think would have happened within a generation, had we not been faced with this problem of management, as distinguished from the purely individual or corporate sense. That means, of course, that we have got to work out co-operation. We are going to work out co-operation on a much larger scale than we have in the past.

That leads me to the third thing. It seems to me that the universities are well equipped to deal with training the minds of the individuals who are going out into the business field, that is, to turn these men out with a realization that the age in which they will do their work, the fifteen or twenty-

five years ahead, are likely to be different, very different, from the fifteen or twenty-five years which lie behind. They will recognize that society and business and all the institutions of society are dynamic institutions. They are working out new types of organization, they are working out new relationships between individuals, working towards new ends, towards ends in which every person is effective. I must be ready to get away from a stand-pat attitude with respect to any and all sorts of human institutions, I must be ready to recognize the fact that a thing that has been in the past does not in itself, unless it continues to justify itself by its work, furnish an excuse why it should be in the future. So that as I say, the problem of the universities is to develop in the minds of their students a sense that they are members of the commonwealth, and they have through their traditions, through their organizations, through the viewpoint of the men who are teachers in the institutions, they have the equipment to develop in the minds of the students these three, to my mind, very fundamental attributes of the successful executive, the successful dealer in business; namely, an appreciation of the applicability of scientific methods in business, an appreciation of the importance of human relations in business, and finally an appreciation of the fact that we are living in institutions which must be seen in historical perspective, which are dynamic from moving and changing all the while, and if we expect to do our work effectively we must move and change with them; that as I see it in a nutshell is what the university can do. I do not think that the great task of the university is to develop technique in particular individual lines. I think it must introduce enough of the business detail so that the student will know what he is talking about when he is applying scientific method to these various kinds of business data, but primarily the mastery of technique in the individual branches of his field will have to come after he gets out in business to a very large extent. It would be too expensive of time and energy for all instructors in the university to undertake to master the detail in very many fields, but he will have an appreciation of the importance of technique to the successful operation of his particular line.

A few years ago a man came into my office to talk with me about his son. His son had started into the agricultural course in the University of Wisconsin, and the boy decided and father decided that agriculture was not what he wanted, and he wanted to talk with me about entering the School of Commerce, and he wanted to know from me first, he wanted me to justify our effort to train men for business, and I told him more or less of what I have said here. Then I said that it seemed to me that we should begin with a pretty general viewpoint in a student's education, and we should keep working up more and more in intensive work until finally his study would culminate in a very intense analysis of some particular problem. He should

go to the bottom of it, get his results, find it and see what all of its relations were, and he should bring those results forth in the form of readable English which an intelligent layman could understand and which a reputable journal might be willing to publish. "Now," he said "how are you going to do that?" He said, "I want my son to go into my own business." "What is your business?" He said, "I am in the gold leaf business. You couldn't supervise any study my son might make about the gold leaf business, because you don't know anything about the business." "But," I said, "at the same time it seems to me that a scientifically trained man might ask intelligent questions and direct a student to intelligent lines of inquiry with respect to the gold leaf business, even though he wasn't a master of the gold leaf business himself." Now, it seems to me that illustrates—that is a justification for the university to take this kind of work. We do not have to be a master of the details in a particular subject in order to point the way towards a fundamental, scientific analysis. If that were true, the industrial engineers, every time they went on a new job, would be disqualified if they hadn't happened to do anything with that line of business before.

When we come to a functional view of business we see, of course, that is not true. Another objection has sometimes been raised. I remember the president of The Chicago Association of Commerce, not the present president, but a former president, who was in my office one day, said, "The whole trouble is that when you get your man trained to go into the mercantile business he will get a fair job after he has made his intensive study in the railroad business, and it will all be thrown away." Of course, that isn't true at all. It will not all be thrown away. If a man makes a very careful scientific study of a problem in the railroad business that, no doubt, is the very best preparation for studying some other problem in the railroad business, or going more deeply into that particular problem. But if perchance that particular man who had made that study in the railroad business should go into some other line of business, he would be very much better equipped to approach the problem from a scientific point of view than if he had never made any study at all. Even though we cannot decide, as has been attempted in some states and some countries, just what line of business he is going to pursue after he gets through with his training, at the time he begins the training, yet the university can if they stick to these fundamental lines of development and make those the emphatic part of their purpose. I do think universities can and are contributing very materially to the training for the generation. I think that they are contributing also in the field of research, to the development of fundamental principles of business organization. In both these lines, training the men that are actually going out in business and developing lines of business research, the universities have during the past ten years made a tremendous contribution to the efficiency in business and pointed the way to developments of efficiency in years to come. (Applause.)

THE CHAIRMAN: We will now hear from Mr. J. W. Dietz, who is the manager of the Educational Department, Western Electric Company, Hawthorne, Illinois

"WHAT INDUSTRY CAN DO FOR ITSELF"

Mr. J. W. Dietz.

Mr. Chairman, Friends: My story is a short one. You will find it outlined on the sheet that was on your chair. Will you hurriedly run through that, as the hour is getting late? Mr. Porter has already told you of the prevalent attitude of industry toward the problem of the schools' job. I would like to get just as nearly an efficient employee as possible, and put him to work. Dean Hotchkiss has already told us that that is not the job of a public school or the educational institution or any grade in the school. Their job is primarily the training of citizens, citizens who are able to earn a good living and earn it fairly. Some employees have taken the attitude that it was the other fellow's job to do the training, and when they needed the trained man, to go out and buy him, or steal him from the other fellow. That works both ways, they steal him back, so where are you? That brings us face to face with the fact that it is our own problem, we have to do it for ourselves. Other folks are training people for business, it is industry's job to train them in business. You can't transplant atmosphere. We have already heard that it isn't the job of any grade of educational institution to try to teach specific facts. We want people who are grounded in fundamentals and who can readily adapt themselves to all problems, including many of the problems of human relationship in business; whether they be of health or safety, or the attitude toward the government or community, we find fundamentally that education is the salvation. It is education that has for its ideal a progressive one, not the old fashioned idea that when you finished school you were educated, but it is the progressive ideal of education that demands that every situation be met that arises, and as much foresight be used as possible in anticipating those needs. Perhaps one of the best ways to show what industry can do is to cite some examples of its being done.

I have chosen a wide variety of illustrations from varying industries because we are inclined in business to say, "That won't work with us, you know. Our business is different." If we can trace through some of these fundamental things which can be adapted and used in each of our businesses, perhaps we will make some progress. Educational problems may be mastered, broadly, under four main headings, as you will note here. Teaching particular tasks. A by-product of that training will be some executives. Your office boy today, if he is properly coached, rather than broken in, will perhaps be one of your department heads, one of your managers, one of your leading executives, in the years to come. You must start with teaching office boys their particular job, just as you would start to teach the machine operator the right way to do the job before you expect him to get up speed on the work. We find here plans which provide for a short preliminary training period or rather training periods. In other words an office boy will be under the supervision of a trained organization, for, say, two weeks. He gets acquainted with the location of the office, he learns to know the boys, he finds out what is being done in different parts of the organization, a very natural sort of thing to teach him. He is taught



J. W. DIETZ

the fundamental things he needs to know like sorting and filing papers, doing odd jobs around the office well. As he grows he works naturally into the job of the junior clerk, or if he is more mechanically turned, he will be directed into some line which is more along his natural bent.

Such plans are usually measured in weeks. What I mean by that is the preliminary plans. The development of these people must be followed continuously. The teaching of a trade for skilled employees or the all-round good man which is so scarce these days is a longer job. There is a great deal of difference in letting a youngster learn and trying to teach him, and trying the old style of plan which is practically obsolete or abandoned, of letting a boy learn a trade under the so-called watchful eye of the journeyman who had a lot of his own troubles, being replaced by plans which are just as different from those plans as a tractor is these days from the old crooked stick used for plowing. The difference is plainly one of supervision, making it somebody's definite job to block out the plans, seeing that they are lived up to and seeing that the plans fit the boys.

In the railroad industries we find instructors for about twelve to twenty-five boys, coaching the work of the boys wherever they may be in the big shops. The Santa Fe Railroad, for instance, has thirty-seven of such shops throughout its system, where they take the boys from Kansas and Iowa, and along their line train those boys into skilled all-round mechanics. The Pennsylvania Railroad has some eleven such shops in its system. The Southern Pacific has thirteen.

There is still another plan which is being developed in some industries, that of a separate instruction shop. In other words, having a typical machine equipment in some one central location, under the supervision of instructors, where your new people are brought in and broken in on each new type of machine. In other words, if you are breaking in a boy on a billing machine, punch press, or something of that sort, he is brought in there and under the guidance of an instructor taught how to do the job. As he becomes proficient he has laid the foundation on that type of machine. Under this plan he is first learning in the instruction shop and then going out and applying under shop conditions in the big shop what he has learned in the instruction shop. Later, if he needs to know the workings of another type of machine, he comes back to the instruction shop for a couple of months, does productive work, slower, of course, than the expert journeyman, gets instruction in training, and then goes out and uses it. So he is alternating back and forth through his four years of apprenticeship work.

A common feature in both of those plans is the school job where technical instruction is given on company time and on, say, ordinarily, four hours a week. The boys realize they are getting the real things, because they are problems that they are dealing with every day. Then comes the still broader problem, that of teaching a business as a whole. It is important that potential executives shall receive their training in those schools of commerce. It is important that you younger men who have broken through the lines in these other plans be given a broader point of view about the business, knowledge of its products, its markets, and a broader acquaint-

ance with the men in your organization. It is to a very large extent just the kind of experience that those men are getting. Education, after all, is simply the choosing of experiences, and so industry has a splendid opportunity to use its every-day tools in broadening the future generation.

Here again we find combinations of plans somewhat similar to those for teaching a trade. We find many companies such as the Commonwealth Edison Company here in Chicago, the New York Edison Company, our own company, the American Steel & Wire Company, having definite plans for college men to come into their work, where they are given practically full time to absorb and understand and investigate the work of the company before they are asked to do productive work, laying a broad foundation in a business as a whole.

A further type of training is that of co-operation with employes through voluntary education. Many interesting plans have been developed along this line. Some companies have made it possible for the employes to get together in groups, taking up particular problems within the plant or in the office, meeting on company time and discussing things which were of interest and importance to the men. Other companies have gone "halvers," so to speak, with the men, furnishing all the facilities and helping finance the plans, and the employes doing such volunteer work on their own time. Some others have co-operated with their employes to the extent of either paying the tuition fees in full, after completion of courses at such institutions as the Northwestern or New York Universities, or taking the work such as is given along engineering lines. It seems to me these are all splendid movements. They are encouraging, because they are making for democracy in industry, and for the opening of opportunities for all who have the capacity and the willingness and the grit to undertake them and profit by them.

You can start tomorrow in your business. After all, this is a problem of doing in a better way just what we have been trying to do for years. You have people in your own organization, you have the viewpoint that is necessary to start this sort of work. Make it a man's job. Give him time to do it. Let him study the job. Give him supervision of your plan. Back it up by the authority of the high officials in your organization. Give him an advisory committee or council for guidance and breadth of view, but get it started. Get the plans down in black and white, then you have something to work to. Get your results down in black and white, then you have some way to find out your failures as well as your successes.

One fundamental certainly is that instruction and production in all these plans have been divorced. In other words, instruction must come first, then production later. That seems to be one of the keynote problems in getting this sort of work properly started in any industry. You know under the stress of present conditions, how all of us are being pounded to get out this, that, or the other part of our regular work. Make it somebody's job to develop employes within your business, and hold them just as accountable for results as you are holding the other fellow for production. It is very difficult to put both those responsibilities on the same man's shoulders.

This will naturally lead us to take an inventory of the talent within our

organization. Your organization is studying where it can substitute this material for that, a less expensive kind for this, or which is more expensive? Or, perhaps, more of a kind of material which will do a better job, which will be cheaper in the long run. Are you, as business men, using grammar school boys where you should be using high school graduates? Are you putting college men on jobs which are high school jobs? Are you putting high school boys on jobs which should be undertaken by technically trained men? Take an inventory of your talent. It is not a far cry—perhaps it is somewhat distant, but let us hope that the time is coming when industry itself will have plans so well organized within itself that every new employe who comes in, whether he is coming to an office from his grammar school education, his high school or college work, or whether he is coming to you from another business, will find a definite, well meaning plan which will help him get started right in the new business, and not until we have such a system will we be as efficient and as successful as we deserve to be.

Any successful plan carries with it the obligation to recognize increased value to an organization. That hardly needs further enlargement. We must come to the point where employes will get together in such organizations as this, and in such organizations as the National Association of Corporation Schools, which is a group of employers studying this particular problem of developing people within their own business. It makes a natural point of contact with such men as our friend, the Dean, here; it makes an understanding point of contact between the business executives and the educational institution; it makes efficient overlapping, but not duplication, in the development of people.

Enlightened self-interest on the part of employes demands this short of progress. It is a duty you owe to your employe. If the training of citizens is the public educational problem, the training of employes is that of industry itself; but we believe in industry that we can, too, render a service to our nation, because we believe the better the employe the better the citizen. (Applause.)

CHAIRMAN PORTER: I hope all of you who can will stay to hear the last speaker on the program, after which we hope to have a few moments of discussion, not a discussion, exactly, but if any of you desire to ask questions, I am sure the speakers whom you have heard will be glad to answer them.

The last speaker, another man speaking for industry, is Mr. E. W. Puckett, the president of the Fort Wayne Oil & Supply Company, Fort Wayne, Ind., another company who has seen the light and who has done pioneer work along educational lines.

Mr. Puckett. (Applause.)

"TRAINING THE COMING GENERATION OF WORKERS AND EXECUTIVES."

Mr. E. W. Puckett.

Mr. Chairman and Ladies and Gentlemen: I know just how you feel. After you have had a hearty meal you are liable to have acute indigestion if you take any more. It is quite late and I am not going to say very much. In the first place I am just a little out of place. In looking down this row of gentlemen here, as speakers, listening to Mr. Emerson and the two gentlemen that followed him, and their remarks, I feel just like I am out of place, and I want tell you why. My work is so different. I was unfortunate when I was a boy, and the college education that they refer to was not my lot. I was unfortunate in not being able to get a college education. I have come along through the line from hard knocks. There is not a man in this room that has started as low financially as I, or any lower—not possible to start any lower. But what happened to me I have passed along the line for about ten years, to boys more than audiences like this, of just what happened to me and what saved me in a business way.

As I say, I was unfortunate without a college education, but I had the privilege of attending a business college, a night school, and I finally had to give that up because I was the support of an invalid father, a lone mother,—and I had to give that work up to go out and earn more money. Just before I left that business college a number of years ago—many years ago it was, because I am too old to go to war—the professor of the business college said to me, "I would like to know why you are leaving." I told him why. He said, "When are you going to leave?" And I said, "On Saturday." On Saturday morning he called me into his office, and said, "Puckett, you are going into a cold world," as he knew, without an education, that is, not even a high school education. "Before you go," he said, "I have noticed your work here in our night school, and I want to give you just a few pointers," and he gave them to me, and, as it were, I wrote them on my cuff, implanted them in my brain, have used them ever since, and have repeated them over five hundred times to high school boys, Y. M. C. A.'s, and organizations of that character.

To me it is a pleasure to tell boys just what I have found out in taking the things that the professor said to me and applying them to my own life, and as I became an employer, of analyzing the boys, analyzing the men, analyzing the people with whom I came in contact. It is a pleasure to me to tell a boy, just in the rude way that I can, just as sure as those lights shine, to tell him twelve things that no matter if he has a college education, no matter if he has not had a college education, he can better himself in life if he makes a study of those twelve things. To me they have been a business bible. And this training, it seems to me, compared to the work of the previous speakers it is simply kindergarten, but my life has been built along kindergarten lines. I say to the boys and the girls, "My work has been more along the line of selling, salesmanship, or what makes for success. Now,

briefly I am going to give you those subjects and I only wish I had the time, for the benefit of the few young fellows I see in this audience, I wish I had the time to go into it in detail and tell you the good things that come from the application of these subjects. These subjects, ten of them, are the subjects that he gave me almost thirty-five years ago. Just think of it! Thirty-five years ago, and they are things that you read today in the modern business magazine.

The professor said to me, "Puckett, when you go out in the world, the first thing that you want to look out for is your health. Take care of your health. The next one is personality. The next one is character, the value of character." Every boy in the country should read Dr. Marden's book on character. The next one is initiative, the next one justice, the next one tact, the next one memory, the next one concentration, the next one co-operation, loyalty, and the foundation of enthusiasm.

I can see the value of a college education, I am only sorry every day that I haven't got it. I can see how I could use it, but the boy that is competent without the college education is bound to rise like cream, to the executive, if he takes those subjects and studies them, reads up on them, and applies them to his everyday life. That is my recreation, it is to tell boys about these subjects. As I say, I only wish I had the time to tell the young fellows how I apply them every day in my business. They are wonderful subjects if you apply them to your life.

It is getting late and I would like to talk for an hour on these subjects, but I know you are tired and restless, and I am going to bid you good-night, with the hope that some time I may be able to have the time to talk more about them. I thank you. (Very great applause.)

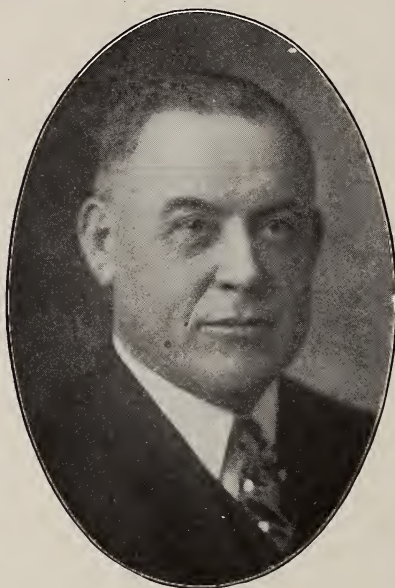
THE CHAIRMAN: Ladies and gentlemen, I understand Mr. Puckett—this is of particular interest to the members of the Western Efficiency Society—has consented to appear before one of the early meetings and go more in detail along the interesting line he has just touched on tonight. I am sure we want to hear him. It is after all the man coming up through the school of hard knocks, who has learned the lessons of self-reliance, who can inspire us most. Our President has some announcement, I believe, that he wishes to make.

PRESIDENT KESSLER: Owing to the lateness of the hour there will be no general discussion. I want to call particular attention to the fact that tomorrow morning the round table discussion will be held at ten o'clock in this room. The round table is a free for all discussion. We want as many as possible to be present from ten to twelve tomorrow morning.

Immediately after the close of this meeting the Exhibits Room will be open for thirty minutes. Answering a question that has been asked several times by visitors and guests, the regular meetings of the Western Efficiency Society are held in this building on the second and fourth Fridays of each month.

The meeting is adjourned.

(The meeting was adjourned to meet Thursday morning, May 24, 1917, at ten o'clock.)



E. W. PUCKETT

THIRD SESSION

Thursday Morning, May 24, 1917.

ROUND TABLE DISCUSSION ON "INFLUENCING THE MANAGEMENT"

W. S. Ford, Chairman

The meeting was called to order at 10 A. M.

MR. A. B. SEGUR, Chairman of Round Table Committee: The 100th meeting of the Western Efficiency Society has shown a number of developments in the efficiency movement. Among those developments there is the realization on the part of efficiency men generally that there is no one man or group of men who hold all the information that is to be had on efficiency projects or on efficiency work. Some of the best ideas in the efficiency movement are to be found not in the large organization but in many cases in the small organization. The men in the large organizations cannot get the benefit of these ideas unless there is some way of bringing these people together and having the various discussions published. That is very largely the object of having the round table. Another thing that we have realized is that the number of people interested in the efficiency movement is rapidly increasing. Five or six years ago the movement was more or less unpopular. I know in our organization, which is fairly large, that the first year that I was there the efficiency bureau men were unpopular. Now we talk with the heads of departments and the things that we thought were folly to mention five years ago, the department heads themselves are bringing up and are urging action on, because it is a matter that has to do with fundamental principles. The movement must grow. The war is on now and we are up against, as Mr. Knoeppel said yesterday, the greatest aggregation of organized brains that the world has ever seen. Unless we get together as efficiency men, get together in a mutual understanding of these problems, we can't hope to successfully meet that aggregation of brains. If we can get together and have a proper understanding of who is who and why, if we can know what every man has done and get the benefit for the whole body of the individual thought, then and then only can we hope to make the most of the efficiency movement. I am pleased to introduce the Chairman of this meeting, Mr. W. S. Ford, who is a member of the Board of Directors and the man who has been very largely responsible for collecting this interesting and instructive exhibit of charts, etc., in the adjoining room. I will call on Mr. Ford to take the chair.

MR. W. S. FORD: Ladies and Gentlemen, I believe the duty of a chairman of a round table is to efface himself as much as possible. The

round table is what every man makes it. We are going to make this strictly informal. The only ruling that the Chair will make will be to ask you to kindly announce your name, in order that it may be properly recorded. I shall not at first set any definite time limit on your talks. The group is small enough so that we can let you talk out what you have to say. I am going to call on Mr. Stanley A. Dennis, who is representing the A. W. Shaw Company, in the absence of Mr. Leon I. Thomas.

MR. STANLEY A. DENNIS: Mr. Thomas, the managing editor of Factory Magazine, was on the program, but was unable to be here; he had to go down to Cincinnati to attend a munitions conference, so he asked me to read his paper. I am not quite sure whether this paper that Mr. Thomas has given me touches the subject that you have in hand before this meeting or not, but I know Mr. Thomas endeavored to touch the subject as outlined in the program. His paper is entitled "**The Place of the Technical Journal in Influencing the Management.**"

"One of the great dangers that every corporation must guard against is the tendency to stop growing, that is, to cultivate what I have sometimes called the inertia of habit, to be satisfied to do things the way they have been done." James Logan, General Manager of the United States Envelope Company, used these words in a letter to me in which he describes a unique plan—a plan in which I think you will be interested. He goes on, "As a back fire against that tendency (of inertia) I suggested to our superintendents and assistant superintendents that they should use at least one day each month visiting one of our divisions in order to see how their work was being done, or to visit some other industrial plant perhaps in no way connected with our industry.

"This was done with this thought in mind—that with the day off spent in a different atmosphere from that in which they lived most of their waking hours, they would come back to their work having had their minds fertilized by contact with other minds, and seeing what other men were doing they would be more open minded with regard to improvements with their own methods.

"After each visit a report is made to the manager of the division noting what they have seen. This is good discipline for some, for without the thought of making that report they would have a pleasant visit but bring back nothing and would have seen very little, but knowing they must make a report they try to note something worth reporting.

"A copy of each report is sent to the general manager and is then edited more or less by cutting out the obvious or that which has perhaps been already reported on by another.

"Two copies of each report are then sent to each division, one for the manager, another for the superintendent. (These are placed in desk files kept for this purpose) and they are supposed to not any suggestions which may have been made.

"They are also supposed to review these reports from time to time, for by so doing they will take up suggestions which when made did not strike them as having much value but something may have happened which now makes the suggestion seem more worth while.

"The paragraphs in each report are numbered and reports are consecutively paged so that reference may be more easily made to any particular point to which it is desired to draw attention later.

"Now what about the value of these visits? That is very largely dependent on the human equation—some men see a great deal—others see very little and those who see the least are the ones who need most the help to be gotten from seeing, but I believe it is inside the truth to say that every visit made is worth while. Our men become better acquainted and our 'industrial family' spirit is strengthened and it cultivates the disposition to help one another."

Mr. Logan may not realize it but he is an editor. He is editing a factory management magazine and further he is influencing his own management organization with it. And the influence which Mr. Logan is wielding with his little mimeographed loose-leafed magazine is a double edged sword. The readers (who are also contributors) are influenced by getting the benefits of a dozen inspection trips besides the one they reported on. (And, by the way, I know that this plan of Mr. Logan's is not merely a good idea gone to seed. It is in full bloom and likely to stay so. I have seen this well-thumbed book of reports—this magazine, if you please—in one of Mr. Logan's factories and have been told by the superintendent of specific suggestions that have been put into practice in that plant as a result.)

On the other hand, the contributors (who are also readers) become keener observers of the good and the bad in management because of the training that comes from setting down in report form the transferable management ideas and plans gathered in plants visited.

I am a firm believer in the value of putting this extra edge onto the influence of the technical journal. I mean that readers ought to contribute more freely to its columns. A management magazine ought to be written by its readers, I believe. True, this makes a lot of work for the editor, but that's not your worry. I haven't much sympathy with the magazine editorial note on the title page, reading "manuscripts must be typewritten and on one side of the sheet only, etc." I would rather get an experience-tested idea from a factory executive written in a hundred words in long hand on the back of an envelope, perhaps while on a train journey, than a fifteen-page manuscript neatly typed on the finest bond but containing not a kernel of an idea.

Influence upon readers grows when other readers tell in a technical journal of their common problems and their solutions.

An editor meets difficulties when he tries to get this sort of material for his paper. Brushing aside the "haven't-the-time-to-put-into-it" excuse, the main reason for refusing to allow magazine use of a management plan may surprise and interest you. It is this, "We don't feel that this plan has been in practice long enough yet to get all the faults out of it. We shall be glad to let you tell the story when we get the thing working perfectly." As you know, that time never comes. If the management is alive it can always find ways to better every plan it has.

I lay no claim to having discovered this tendency to hold a thing back

until it is perfected. I am merely echoing what has been said by others not in any way connected with technical journalism, but I do know from experience the retarding influence that this is on the development of the best in management. As one high executive in a Cleveland concern put it, "And the best things are never absolutely perfected. So, by this reasoning, much is lost to all."

If you will think it over I believe your own experience with recently graduated technical men will back me up when I say that this tendency to believe that there is no value in a thing unless it is 100% correct is more pronounced in the engineering type of man, particularly in the engineer who has not been long separated from right and wrong (zero or 100%) answers to college questions. It wears off with greater contact with the ways of the business world's gradual development.

Probably the sales type of executive overestimates to the same degree that an engineer underestimates the value of a workable plan.

The technical journal has a distinct advantage over some other agencies in influencing the manager. For instance, it has an entre to him when he has his slippers on in the evening at home. There, no Browns or Jones interrupt him with troublesome details about this shipment or that material shortage. His mind is detached enough from office surroundings to see, undistorted, the value of an idea in its relation to the other factors in a case.

But there are disadvantages, too, in the technical journal as a means of influencing the management. In four words, "People dislike to read." The most powerful printed argument has no influence on the manager if he doesn't read it. There are ways to offset this objection. That's part of the editor's job and you will not be interested in the detail, but needless to say, a readable title expressed in good typography, a clean page, well illustrated, well printed on good paper, help.

A journal written not at readers but to and by readers out of everyday experience stands a good chance to have a strong influence upon its readers who in the present discussion are those making up the management. Such magazines can bring to an executive the experience of others whereas he would not take the time to visit other plants even if he knew where to find the ones with the same problem he is facing.

Furthermore, where a magazine covers more than a single line of industry it brings him the experience on a common managerial problem from plants quite outside his line—plants that it would never occur to him to visit. Under such conditions each issue becomes a set of reports upon some common function of management.

Being a reader of such a magazine has a parallel in attending a convention, so far as beneficial results go. It differs in that it is "held" once a week or month. Everybody can hear. There are no railroad fares, no smoky conference rooms (unless you prefer them to be) and no set hour for the meetings.

But to get the best influence from either don't merely register—enter your subscription—and then think your duty is done. Show up promptly

at the meetings and listen—take the magazine out of the wrapper promptly when it arrives and read it.

THE CHAIRMAN: Gentlemen, how many of you have had experience in passing magazines around the shop for your men to read and observing results? Has any one here tried that out? Before we go on, are there any comments on that point?

MR. DUTTON: The Pullman Company has tried that in a small way, and is trying to do it to a little greater extent with some of the magazines and I know the results have been quite satisfactory on the whole. Some of the men take the magazines and don't read them, but keep them a long while, and, of course, there are difficulties. Others take the magazines but don't seem to read them and return them. I think it is a very good plan in this way to require the men to check the reading of the magazines, and possibly in some cases to go a little further and make a brief report on the ideas. I think the average shop men are in very great need of that sort of work, of getting around and reading periodicals. They do not read very much. If we can get them to actually read things, as we ordinarily do, and circulate them with the request to check, it seems we should get good results.

THE CHAIRMAN: It is an excellent plan to send the magazines out into the shop, but what has been the experience of you men?

MR. L. W. WALLACE: I have had no actual experience myself, but I know the New England Butt Company, Providence, R. I., has a reading box into which they put technical magazines and factory publications and current periodicals of all kinds, and give their workmen the opportunity of taking those at their pleasure and not bringing them back, if necessary. The difficulty with the New England Butt Company is to keep magazines and reading materials in that box. The men take them out, take them home, and the presumption is that they are read and they appreciate it very much. I know that that is also being tried in another factory on a small scale at Indianapolis. Over there the last week the person in charge said that those magazines are going out rapidly. From some investigations and talks with people who have tried these things, I am quite confident that it will work if you give them the proper encouragement.

MR. W. A. GRIEVES: We have one of our engineers who has it as a part of his duty every day, if a magazine comes in, to glance over each magazine, mark the articles and then draw the attention of the particular person in that organization that would be interested in a certain article. That is a part of his work. We have found that immensely profitable. Because of the large number of magazines it is so easy to overlook some of the very best articles that are published. The average person does not have time to look through all the magazines, but by having our attention drawn to some particular article, matters are greatly facilitated. We have found it so.

THE CHAIRMAN: I had an experience not long ago while up in the tool room. I picked up the American Machinist, and found an idea that I had been looking for for a long time. It was only by accident that I found the article. Has anyone else had a similar experience? What is the money

return from getting those ideas out to the men? Can anyone trace any direct money return except from the enthusiasm that is created?

MR. DENNIS: I take it that a number of the men here must know of the little scheme that "Factory" has worked out for the distribution of the magazine in the shop. How many of you men know about that? Let me see your hands. Then it is pretty well known. I might say that that little slip across the bottom of the front cover, or inside, for the insertion of names and the route of magazines from factory executive to factory executive, or from manager to superintendent and so on has panned out very well. We have in our office quite a number of letters, indicating the very definite value of that little scheme. I might say this, that it would be the simplest thing in the world for you to have your printer set up in type on a little slip of paper that same form used in "Factory," and just glue it to any other magazine and circulate it in the same way. We are perfectly willing to have other magazines circulate as well as "Factory," so if you will just adopt the same idea they will all be circulated. They will all be circulated a little bit better if you have a check up or follow up system, to make sure that the magazine does not die in the hands of one man and fail to reach the next one.

THE CHAIRMAN: I, personally, am certainly sold on the magazine idea. Mr. Stephen A. Gilman, of the University of Wisconsin, is here. We would like to hear from you, Mr. Gilman. Perhaps you will be willing to talk to us on technical training for business.

MR. S. W. GILMAN: Mr. Chairman, I had no idea whatever of being called upon this morning. I came to Chicago unexpectedly, and expected to spend the day here, a few minutes in this room and the balance of the time in connection with the Quartermaster's Department. Of course, I would not fail to appear before a body of this kind, under any circumstances, even though unprepared on the subject in which you are specially interested. My experience in the City of Chicago for twenty years in technical business, largely in manufacturing, coal mining and railroading lines, was followed and has been followed for a number of years by an educational experience in the University of Wisconsin, starting into that institution about the time that there arose among the universities of the country an ambition to participate in technical education. The University of Wisconsin seventeen years ago entered the field of technical education for business. At that time I was among a great number of business men who had absolutely no use for college educated business men. If I could find any one to enter our organization who had not had a college education, he was preferred, very much preferred, to one who had. That was before the days of the plan for education for business. I believe it is true that eight or nine of the great universities of the country have seen the opportunity to participate in the preparation of young men for business. I believe that they have, after many years of very costly experimentation, exceedingly costly, making all kinds of mistakes, have come to the right idea of mingling in with the cultural education the preparation or the academic degree and the liberal arts courses, mingling in strong vocational work. Taking these young men into the great business organizations, bringing them to Chicago, taking them to Dayton, taking them to the great manufacturing plants of the United States and letting that

dovetail in with their corporate finance, cost accounting, business organization and management, industrial management, scientific management, and seeing the best minds and meeting the best people. Above all, it seems to me that our strongest work has been done in getting a group of impressionable young people to face great personalities in business. We have had the good fortune to have a dozen or fifteen, sometimes twenty in a year, of the great manufacturers of the country appear before the students, men of great renown, men of great personal capacity and influence, who come before our young people and who have helped to establish standards, standards of personal efficiency, standards of manufacturing, efficiency standards of personal conduct, if you please, and a well rounded equipment for the affairs of life. We have found it a great help to us to bring men like Samuel Insull of the Commonwealth Edison Company, to bring men in from Milwaukee, the great organizers of that city, and of Chicago and of New York and of Cleveland to appear before these young people and impress upon them the absolute necessity of a strong, fundamental preparation in political economy, in political science, in accounting, in business law, in the sort of thing that gives a taste for research, for investigation and for strong study along the lines in which you are interested.

Now I am particularly skilled in the things in which you are interested this morning. I am interested in all things that concern your society, and I am an admirer of the Western Efficiency Society. I count among my personal friends a number who are very enthusiastic in the management of your organization, but I say to you that we are trying in the University of Wisconsin to equip young people of capacity, of character and personal ability to help you solve the problems in which you are particularly interested. We find that our youngsters will go down, for instance, to the great shops of the Chicago, Milwaukee & St. Paul Railway at West Milwaukee and will spend days, not in the rah-rah attitude of the old time college student, by any manner of means, but will stay there from eight o'clock in the morning until six o'clock at night, without any lunch, simply delving into the problems and getting educated, if you please, in the mechanical processes, in the storeroom problems, in the handling of reclamation of material, in all those things which form such a splendid and valuable laboratory for us all.

I believe in the future of vocational and technical education, and I think our Dr. Scott, the director of the course in Commerce at the University of Wisconsin, was right seventeen years ago when he made the prophecy that there must be if the great institutions of learning are to live and extend their influence a recognition that there is a profession of business, that we must help to make a strong and splendid foundation for the business men of the future. My son in his professional or mechanical or manufacturing business today has not at all the problem that I had when I entered into business, with the forty different kinds of competition, trained into the service and trained to appreciate the great group problems, the great problems of commerce that it was not necessary for the man entering business forty years ago to have a knowledge of. We are with you, and we stand ready to co-operate, to get your counsel and ad-

vice for all our courses, probably forty-six vocational courses at the University of Wisconsin, or subdivisions in which we are attempting to inspire, to inflame, to enthuse young people not with any little superficial courses, but trying to get them into the very heart of big things and get them to appreciate what the great big corporations want when they are looking forward to taking young people and infusing new blood in the business, and it has given me a lot of pleasure to appear entirely unprepared as I was for the occasion before you and say a word of greeting, and to tell you that I think you are a splendid organization and are doing wonderful work. Your magazine is doing wonderful work. People talk about it. Your influence is being commented upon all over the country, even though you may get no direct reaction from it. I thank you very much. (Applause.)

MR. CHAIRMAN: Mr. Gilman has very ably expressed the present tendency in business. Along that same line I should like to call on Mr. L. W. Wallace, of Purdue University, Lafayette, Ind.

MR. WALLACE: Mr. Chairman, I am like my friend Gilman. I have had no previous warning that I was to be called upon. It seems college professors have the reputation of being able to talk, and when a chairman of a meeting wants to kill some time he calls on the college professor. (Laughter.) It is like the experience I had some few years ago when I was explaining some researches before the Western Railroad Club in carrying out experiments with still air. In the discussion of that problem the question arose what would happen if the air had been in circulation instead of being still. I replied to that question at the time of making that research I kept all hot air professors muzzled. It seems to me that the chairman of a meeting sometimes wants to unmuzzle the hot air professors and call on them as he has done this morning. I wish to say that I am very much interested in this conference. I am a member of a national organization, the American Society of Mechanical Engineers, that is this week having its spring meeting in Cincinnati, a few miles from my home, nearer my home than Chicago, but I looked over the programs of the two meetings and I came to the decision that this Western Efficiency Society conference was more important at the present time; this topic, this outline that we have under consideration is more timely than the subjects the American Society of Mechanical Engineers has under consideration, so I came to Chicago instead of going to Cincinnati.

You know for many years the manufacturers of this country have entirely neglected the human factor in management. We have paid a great deal of attention to, laid a great deal of stress upon machinery and upon the materials, but that other and third element, alliterative letters, as you will notice, men, we have neglected a great deal. We have come to the point now where that is the very vital issue. Indeed, the man problem is now the most vital issue and instead of the making of man power more efficient, or because of the inefficiency of man power, a great many of our factories are facing a serious situation. Indeed, a great many of our organizations, if they do not promptly solve this man issue, are going to lose dividends and they are going to fail to produce the goods and meet their delivery promises. Therefore, I am entirely and keenly interested in this prob-

lem. Being a university man and a teacher indicates that, otherwise I would not be in the teaching game, although the university professor gets a lucrative salary, of course. (Laughter.) Primarily, it is the man, it is the interest in the man problem that keeps men like Professor Gilman and Dr. Scott in the teaching game.

Now a word with reference to technical education, technical training. I presume that is what Mr. Ford wants me to talk about. Primarily, I wish to say that we have organized a course in industrial management in the university school of mechanical engineering. We began in a small way five or six years ago. Briefly, we give a course of lectures on shop management problems, types of organization, labor problems, labor unionism and non-unionism, wage problems, handling of materials, store-keeping methods and all of those things that you think of connected with the problems that face the executive. In addition thereto we have the idea that the future shop executive must know something about heating and ventilating his factory. If you keep your workmen comfortable and contented you will not have such a large labor turnover. So we must these days pay some attention to the environment of our workmen. I served an apprenticeship in a shop where the environment was unattractive. I looked out of the window on a foreboding landscape. The progressive factory manager realizes today that he must make his surroundings comfortable, pleasant and appealing to the best taste of his workmen. So we go into the question of heating the factory. We also have the conception that the modern factory manager ought to know something about hygiene, sanitation and first aid. So we give the men some instruction on these subjects. The factory manager ought to know something about lighting. We know that today the lighting problem really has a decided influence upon production. In some lines of manufacture it is a very decisive factor in the question of fatigue, the importance of which all of us now recognize. The modern factory manager, the future factory manager must know something about light, so we go into the question of factory lighting. So much for the outline of the lecture course of study. We have six hours a week devoted to factory design. We do not give a hypothetical case or theoretical case; that is the way they used to teach in colleges, but we are not doing it any more. We go to the shop, as my friend has referred to, put the men in the shop and take up the design problem in that way.

Briefly, for this year the Monon shops at La Fayette are very crowded and obsolete and they need equipment. We went over there and made a detailed layout of the factory problem for that shop, located all the equipment, got a list of all materials, a list of every operation through which each piece went down to the matter of route charts for every piece of manufacture and repair of locomotives. On that basis we then took templates and made a re-arrangement of the departments, rearranging the equipment within the confines of the present shop layout. We showed up the defects of the present routing system, showed up the defects of the present shop layout. Then they wanted to build. We then went back through the records for the past five years and found out what their growth was, what line of repairs came most frequently, and then

on the basis of that we anticipated what the growth would be for the next ten years, and then made the proposed factory extensions, additional floor space. After that we then made a re-arrangement of the plant, the routing system and the layout of the equipment in the proposed enlargement and put in a heating and lighting system.

Along technical lines, training in industrial management is one of the things being done. It is being done elsewhere somewhat similarly. Perhaps the University of the State of Pennsylvania, where they are doing the same thing, has one of the best courses. You will find that the technical institutions like Wisconsin, Illinois, Purdue, Penn State, Worcester and Dartmouth are keenly alive to this new problem that is confronting the factory people of this country. We are delighted to meet the problem from our viewpoint by giving these men some insight into the factory problem. (Applause.)

MR. DUTTON: I think the chairman is running a rather grave risk on a warm day like this to call on so many college professors. However, I would like to add a little bit to what Dean Hotchkiss said last night. I think he well put the case for the Northwestern University's conception of training in business. Perhaps I can bring out one or two elements. What is the problem of educating the technical man, giving the man a technical education for business, or in fact for any other line? As we conceive it, it is not primarily a question of giving the man this specific training, the specific knowledge or particular methods he is going to meet. That is too expensive an operation, because when that man gets out he is entirely likely to get into a line quite different. In my case I studied electrical engineering, and I am now teaching industrial management, two lines which are connected but by a rather thin thread. So that it is too costly to give a man technical training of that kind. As we conceive it, the primary idea of a college education is to give him the training in habits of thought, in methods, if you will, of working with the mental tools, and such problems as we have just had outlined to us here are very excellent examples, as we understand it, not because the man is going to do those things. He may do them, but more important than that he will have a definite method established in his mind. He will learn how to attack such problems. The next problem may take up an entirely different line.

We hold there are three very important things that we have to do for the college man. In the first place, we have to give him this training in scientific method. In the second place we have to give him an understanding of the human element. That is a new problem we have just begun to approach. In the third place we have to give him enough contact with the practical side to make it real to him. We all find it mighty hard to listen to a talker who goes through a talk dealing entirely with abstractions, dealing in no concrete illustrations. In this connection I would like to make reference to the work which Mr. Simons of the University of Chicago did last year in sending out his men, not only for a visit but for rather extensive studies of individual plants. That is really pioneer work in the field of industrial management. That is giving a man the required contact. There are still some problems to be worked out. It

is a tremendously hard job even in the course of several days' work in a factory to get anything like a conception of the real conditions in the factory. Really the only way you can get them is to be there several months. Our efficiency managers are finding that out. Sometimes they are in a grave situation when they are called upon to make a report on very brief notice. You have to be in a plant for some time, you have to see and understand conditions and see the way things work from day to day. You have to become acquainted with personalities before you can really size up a situation. It is not an easy thing to let the college man get that at first hand, more particularly so because he has no experience. We are all thinking and working in that direction.

Now I might just in a word describe the courses which we have been working on at Northwestern with the idea of teaching method. The average college man learns method in university courses. He learns how to generalize, to pick out the kernel in a situation, and to find the underlying law, but very frequently he does not realize that he has learned it until long afterwards. I know in my own case I very nearly went through the whole course in engineering before I realized there was a scientific method. I had used it but I didn't know it. I believe it is a desirable thing for a man and a very helpful thing for him to understand the tools he is working with. So we made an attempt in a means which we have euphoniously labeled efficiency standards to teach scientific method. In the first place, we are giving a series of lectures on scientific method, the use of that thought tool, if you will. In the second place, we are taking a single problem. In this case we take a comparison of the relative cost of the addressograph and typewriter operations, for a given size of lists and number of uses and names and take time studies on the operations to compare that element and give the cost figures, and have the men work out a set of comparisons, in fact, a set of curves making the comparisons general. That is only one particular problem. Next year we hope to take another. The idea is to take some problem which can be solved in class and to give the man an opportunity to use the tools which we discuss in the class.

Now I want in conclusion to speak of a third element. I have mentioned the scientific method, the value of teaching that, I have mentioned the contact with practical technique, but I think really the biggest problem which today faces not only the college professor but the public at large is education in the value and the methods of use of the human element. My predecessor has made much study of it and it certainly is the unsolved problem of business today. We have gone through an era of development of mechanical methods, of systems, and we now I think understand pretty well the principles that underlie production and control. That was a thing which was chaotic a few years ago, but the work of such men as Taylor and Beruth and Emerson and a great many individuals in this field, working in particular plants, has brought out the underlying principles so that today we understand, I think, in a general way what should be done. There are still thousands of plants that know nothing about it, but we have the principles worked out. The problem is being solved. Our problems are other than mechanical control problems of finance and problems of accounting. They are still in a

state of flux, but we know where we are. We don't know completely where we are on this question of handling men. As I study plants and work in various plants, I am more and more impressed with the fact that the realization of what the problem is is very tremendous.

Now there are several elements which are necessary in controlling men. In the first place, we naturally have to have the mechanical co-ordination and system. In the second place, we have to have the stimulus and the definite measurement. Those are mighty important principles, and we know in a general way how to get at them. In the third place we have to get the man's co-operation, his active co-operation. I have seen some plants in which it seemed that this was not understood at all. Now, how are we going to get that co-operation? There seem to be several elements in it. One thing which I believe we have neglected somewhat in many cases is the element of personal loyalty. Mr. Dietz last night made a most excellent talk and I was sorry we did not have time for questions, on the subject of Educating the Man. We can't expect a man to be enthusiastic when we say to him, "do this," and we don't tell him why he is doing it or what the result will be. He is just a machine. It was not very long ago that I had the opportunity of hearing a bunch of men who had not exactly struck, but had asked for an increase in wages, a bunch of office men. There were a lot of malcontents, and sore-heads among the bunch. What was the complaint? The obvious complaint was the higher cost of living, and of course it was a real question, but underlying that there were countless little questions of personal difficulty. One of the men expressed the feeling that he had by saying that this particular company seems to treat us like a machine. We don't get any human consideration. The men have to have that if they are going to work, if they are going to be enthusiastic, if we are going to get results, not only measured results, but in unmeasured things, the economy of stock and things of that sort. How are we going to get it? One way is educating the man so that the man knows what he is doing. I have personally come to the conclusion that we need another thing. We not only need the original idea so that the man is intelligent, but we need to give him constant contact with the management. When we give him an order we don't need to explain and ask his opinion about whether the order shall be given or not, but I think we gain a great deal if we at least explain to him the general theory underlying the thing, and thus make it intelligible to him. Those are some of the things.

You will find in every plant some sort of an organization. There is a society just the same as the United States of America, or the whole world of societies. There is collective opinion, and there is collective purpose. How are we going to use it? Sometimes this collective opinion goes against us, and very strongly, and that is the kind of collective opinion which forms the fighting union. I believe myself that the union has its place. It is a sort of check. In many other ways it exercises a valuable function, but if we are to avoid a union or an organization which is working constantly counter to our organization, we have to in some way capture this social spirit. We have to offer the men something which makes them feel we are all working together, something which makes them see the importance of the thing that they are do-

ing. That is the problem, it seems to me at present, the biggest problem in industry, the understanding of the social instincts and impulses underlying these things, and understanding the handling of men, not the purely mechanical and systematic correlation, that is important, but it is not all. How are we going to teach our college men that question? It is something that we have not completely solved. I think we solved it in part by establishing the college course. We have done something to give our college men broader sympathies. That is one thing needed, another is a clearer understanding. Such books as Social Psychology are of extreme interest in presenting and developing this understanding of the motives that we use in dealing with organizations. Just how we shall do these things, how we shall give them the clearer understanding and the broader intelligence and sympathies is a question we are trying to work out now. We are trying to reach a solution of practical contact. Undoubtedly, one thing that will do it is to make a real contact if we can, put the man where he sees this problem, these human problems. There are always various elements to be considered, but there is one for which we have to have a solution some day. (Applause.)

THE CHAIRMAN: Gentlemen, it is one thing to give a man a technical education and the training, and it is another big thing to apply it. I would like to hear from some practical operating men here on applying technical knowledge in the shop. You have had your troubles, every one has, and some men you employ, technically trained, finely educated, fail to make the success they should. I would like to hear from some of you along that line.

MR. PORTER: In my opinion there are two reasons why some of us fail. One is the utter lack of appreciation of the workman's point of view, too much of a tendency to see things entirely through the eyes of selfish and short-sighted management, and the other is too great pride of learning. You have got to absolutely divest yourself of that in order to get on with practical men. Be humble. Don't lord it over them. Make your employees feel that you are trying to help them, to benefit them, and you will have no trouble. Men naturally, I don't care where you run on to them, what nationality, type or state or condition, hunger for knowledge. If you can show them a good thing in a simple way and convince them you are for them and will help them and are not trying to put something over. It took me several years to learn that myself, as an engineer. Be sure that you get their point of view. Remember, that you are trying to reconcile apparently conflicting interests, that in reality are not conflicting interests; that you are not merely a representative of the selfish interests and trying to fetter them still more. Of course, there are various ways, such as the clever advertising man using the art of suggestion and so forth to help, but it all goes back to those main things, be humble, be sincere and square, and, above all, see both sides of the question.

THE CHAIRMAN: Mr. Porter hit the mark squarely when he said to be sincere and square. I certainly want to say some good words for the men who are coming out of the universities trained in industrial management along those lines. They are getting the practical point of view, and it is my

opinion that they are taking less time to be absorbed into the practical activities of the plant. I am sure that the courses must be very, very practical and live in order to make that true. I should like to call on Mr. McWorkman.

MR. McWORKMAN: We have had some peculiar problems, but I think one of the things we have learned is that it is absolutely necessary to begin, not at the bottom of an organization to start efficiency methods, but at the top. We have had some years of experience, beginning at the bottom, but just now we are realizing that the best place to begin is at the top. We have introduced possibly a unique function into our organization, which we are calling the Division of Co-operation and Inter-relationship. This function has the duty of taking care of all cross-questions between departments and the shop. It is practically our betterment department, and it is concerned solely with the human relation in the factory and that department, and they will finally work out ways and means of putting the technical information to the shop people in a way that they can assimilate it. (Applause.)

MR. WALTON: I just want to say this: I am not speaking from the standpoint of a teacher, but from the standpoint of a practical accountant. It is all very well to prepare the men, to teach them what to do, but what good does it do unless you can persuade the business man to accept your views and put your systems into operation? Along the lines that have been talking of, one of the first things to do is to make the man and his employees see that you are working for them, not for yourself. You are not working for a fee. Your idea is that you are there to render service. Service should be the watchword of both the engineer and the accountant, and of all professional men. A professional man renders services which are a long ways out of proportion to the amount of fee that he gets for it. A lawyer will give advice which is worth thousands of dollars to his client and he charges him \$50. The same way with an engineer, with an accountant. That is professional work.

Now how are you going to get these men into service? Well, you have got to persuade the business man that he needs the service. That is what I understand by influencing the management. It is very difficult for you to go there and say, I want a fee of anywhere from \$500 to \$3,000 or \$4,000 for doing you a service. The fee is the immaterial part. I am here to give you a service which will be of immense value to you. Incidentally, I am entitled to some reward for doing it, but that is not what I am here for. I am here to give you that service. Your statement of that is not very convincing, because he has always in the back of his mind the idea that you are working for a fee.

How did we get at it in the Accountants' Association. We got the men who were independent of the accountant. For instance, Mr. Hurley, of the Federal Trade Commission, at first was very much opposed to employing accountants, and a committee was appointed to meet him. They went over the subject with him. They showed him that the accountants could be of immense service to the business men just as the efficiency engineers can be of immense service. When Mr. Hurley comes out with a statement to the busi-

ness men that they should employ accountants, that they should have proper accounts and that they should know their costs, that they should know whether their factories are efficient or not, that has some weight, because Mr. Hurley is not working for a fee. He is entirely independent and his advice is entirely unprejudiced and has an immense weight. It is the same way with the Federal Reserve Board. The accountants showed the Federal Reserve Board that they could be of immense service to the banks in going over their accounts of persons who borrowed from the banks. What is the result? The Federal Reserve Board has come out with a pamphlet with reference to account and has highly recommended, almost made it obligatory, that business men shall employ accountants. Now the Federal Reserve Board is not interested. They have got no fee coming to them. Therefore, their advice bears weight, tremendous weight. The United States Government has recognized the efficiency engineer and the accountant now in this war program as it never has done before, but as the English government has recognized the chartered accountant right along. They are employing accountants. They asked for volunteers and from the membership of the American Institute of Accountants they received offers of service from four hundred members, and that service was offered, and so far as the principals go, with absolutely no remuneration whatever. I may be pardoned for saying that my partner is down at Washington today receiving instructions on four months' work, for which he will receive his traveling and hotel expenses and no more from the United States Government. I don't know what he is going to do, but he is probably going to check up contractors' work to see that the government is not cheated.

Now if we are going to influence the management we want to influence them in such a way that they will feel that the advice given them is disinterested. The advice that is given by such men as that is disinterested. Another thing that can be done provided you can get good speakers is to go before business men's associations in the different cities, and show them just exactly what these college professors have said that they have got, the men that can be of immense service to you. They don't know it. You go into a town of thirty, forty or fifty thousand inhabitants and you will hardly find a single business man that knows what efficiency in his factory is, or in his shop or in his store. They have to be educated. Now after they are educated then the accountant and the efficiency man can be of service to them. The point is to educate them. If means are taken to get at the head men in that way they will become educated. It is very difficult for a man to go and say to a manufacturer, you let me into your factory and I will save you a lot of money. He would not believe it. Nine times out of ten he thinks you are simply talking from a doctrinaire's standpoint, that you have got a whole lot of theories. He doesn't see that theory is necessary before practice. Practice is simply theory put into operation. He doesn't understand that. He has got to be told and the best way to teach him is through the instrumentality of some man who hasn't got any axes to grind. Those are the men that should be influenced to give the advice. The great trouble with all work in a factory is that unless the man, the head of the concern is absolutely convinced by some one in whom he has confidence that

you are going to be of some service to him, and that you are going to fix the factory so that it will be much more efficient, or even his retail business for there is efficiency in a retail business, just as much as there is in a big factory, if you can show him that it is going to improved, he has got to have that confidence in you before you begin, because when you have started to change a factory or his business there is always opposition. There is always somebody that says I don't believe in that little point.

Another thing, after you have started to install efficient methods in a factory or a business, it is best to go slow at first. Don't upset the whole thing at once, but gradually introduce your better system and show the men in the factory, the man at the lathe, for instance, that you are working to help him. And when he sees that, if he is efficient that he will be worth more money, especially if he is on piece work, then he is interested. The difficulty has been right along that we try perhaps to show the employer, the head of the concern, that we are going to benefit him, and we don't show the foreman or the workman that we are going to benefit him. That is a very important point, and that is one of the things that the efficiency engineers and accountants try to do when they go into a place. They try to show the book-keepers, for instance, that they are there to help him, not simply to come in there to help the employer. If we can show them that we will gain the good will of the men, and when the system is put in they will carry it out. The great trouble is that when a system is put in and left without any supervision, some foreman says, "I don't believe in that particular thing, let us cut that out." He can't see that that is a link in the chain, and if you break one link you have broken the whole chain. I think the efficiency engineers and the accountants ought to work together. There is no question about that, and to get their work before the people who would be influenced by it, and getting it before them not as a means of our earning a fee but as a means of giving them the service that they need. For that reason the accountants at least frown on the men who are making a commercial business of accounting. I don't believe in commercialized accounting. We want to make it a profession. The only way to make it a profession is to persuade the men whom we have as our clients that we are rendering them more service than they are paying for, not simply earning a dollar fee by doing a dollar's worth of work, but earning a dollar fee by doing \$10 or \$20 worth of work. (Applause.)

MR. E. V. CROUSE (International Harvester Company): This is entirely a new idea for me. The idea of getting up and addressing anybody in a public meeting regarding anything pertaining to industrial work is new to me. I am not a technically trained man, unfortunately. I speak from the practical end of it. My experience covers 32 years of service, during which period I have encountered technical men and practical men in fifty different places. The one difficulty of the technical man entering into industry seems to be the particular line along which he was educated. He comes in with ideas which have been taught him in the colleges or technical schools, and they do not fit in with the management and ways and methods of factory manufacture. Therefore, he looks for a man to carry things along his way only to find that he must alter his methods to comply with

those in vogue. I had the pleasure some fourteen or fifteen years ago of meeting Mr. Hugo Deimer, when he first took up the matter of shop production. I met him out at the McCormick Works and I knew that he had come there to study their ways and needs. The works at that time had just come in, as you may say, to the consolidation of the harvester companies, and they were operated not along strictly technical lines, outside of the drafting rooms, but new thoughts, new ideas were coming into the plant by technical men. The plant being so large these were a long while in being put into force. At the present time the harvester companies are making every endeavor possible in all of the works to align themselves with technical training, because the educated man, the technically educated man, has a greater possibility than the uneducated man. He must when he comes into the factory apply himself to a given extent to the processes which he must encounter. The change of methods means big expenditures and ways that will hardly fit in with present existing ideas, and therefore his road is a hard one for a short period. Eventually he will come into his own, and if he has properly applied himself, is competent, he will attain that which he seeks. I have found in the past and know personally a lot of men that have come from college, and have entered our shops, not exactly our shops, because my time has been divided over a dozen. One idea that seems to retard a man on his entrance is the fact that he thinks that when he starts out in business he is worth so much, and that is the greatest stumbling block. Manufacturers take men into their business. It is new to them. The work is entirely strange for a given period, and their services are not worth the money that they expect. As I say, time will change that, but I believe that the high ideas the first year or two of service in the public with the technical man should be brought down to what would be within the means of the manufacturer. (Applause.)

THE CHAIRMAN: Mr. Crouse brought out a very practical point. We lay our plans very neatly to what we are going to do in the shop, then we have to make them all over again. Unless we give and take we won't get very far.

MR. STAFFORD MONTGOMERY: In regard to the first speaker this morning, the possibility of getting the technical magazines read, I think that in Chicago the one very good chance is to persuade all employees in an executive capacity—that is, clerks and strawbosses, most of whom have to ride for thirty minutes or more straphanging on street cars getting home at night, to swear off reading the afternoon paper and let them read the morning paper coming down to work, but make them promise to take one of the magazines home and to read it as they are hanging on the strap. That will give them thirty minutes of that magazine, and very likely they will continue to read for another hour after supper. In that way you will cut out a needless expenditure of energy. You read the news twice, in the morning and in the afternoon papers, which most men do anyhow, but you have gotten interested in a course of study and that might ultimately lead up to those men taking one of the correspondence school courses.

The point that probably would help in the solution of both bringing the matter of efficiency matters home to the management, as well as to the men in

the shop, is better training in English on the part of college men, whether they happen to be A. B.'s or Engineers. The leading engineering schools of this country have no English whatever in their engineering course. None of the engineering courses have more than two years of English, but even the A. B. men who get four years of English in some of the colleges will turn in such miserable products to the college journal, products that have to be completely rewritten, and the same thing applies when they try to make a speech before a ball team or some impromptu gathering. The fact is they have no vocabulary and no delivery and a very perfunctory course in public speaking or the training that the law students get would be of considerable value to those men, as well as some knowledge of English composition that even the A. B. men don't get under the present system of instruction. Take for example the use of the words efficiency engineer. Now that word is very largely used by engineers, and you would think a man with even the rudiments in engineering training would recognize that the word engineer means a man whose business it is to promote efficiency, whether he is a design engineer, a gas engineer or running a hydraulic power plant or managing a factory. To speak of an efficiency engineer is tautological, like speaking of an illuminating lamp, and yet those two words have been coupled together for many years by engineers and the A. B.'s and college professors, which indicates that they do not analyze their language sufficiently to express their meaning, and if they habitually fail to use correct language, both in writing and speaking, their thoughts certainly can't get home to the executive and to the men in the shop. (Applause.)

G. MacKAY (Industrial Securities Company:) This gentleman here spoke of the human equation. It seems to me throwing facts back into mental categories that we could well give some attention toward placing our minds or our thoughts upon that which in the final analysis is the motive power of this thing which we call human machine. On that point I am going to refer to three books. One is a rather comprehensive book, namely, "Buckley's History on Civilization," in which he brings out very clearly the fact that Oriental and Asiatic Civilization must be looked at from the standpoint of nature on man; the Western or European Civilization, however, is the control of the human factor over environment. That is the psychology of Western Civilization. Now we can understand why we are talking today of the human equation, in view of the fact that in the last forty years in this country the relation of the population to the potential possibilities of our national wealth has given rise to the greatest process of exploitation, and the exploiting process always brings into the forefront the exploiting type of mind which has a tendency to put a kibosh on loyalty and enthusiasm and idealism, those things which eventually a civilization depends upon, and consequently there has arisen in this modern civilization, at least in this country during the last forty years, a rancor and suspicion and pessimism that we are trying now to kill by capitalizing the human equation.

Now this question of loyalty as been very well brought out in two books, one issued some fifty or sixty years ago by Ruskin. Ruskin started, as you remember, as an art critic, and eventually turned to the larger thought of economics, particularly as he called it, mercantile economics, and

in his last days he wrote a series of essays that are published by Everyman's Library, issued by Dutton, the first essay of which is called "The Roots of Honor," in which he discusses this problem of the motive power of this machine we call the human being, and he runs back into loyalty. Now the question of loyalty has been set forth in a most transcendent manner by a very skillful writer and profound thinker, namely, the late Professor Royce of Harvard, under the "Philosophy of Loyalty." Personally I have read a great many books on efficiency, in fact I have read almost everything that I could lay my hands upon, but from none of my reading have I received the same mental stimulus and the same mental enlightenment in the broadest and most comprehensive sense of the term as I have from Royce's "Philosophy of Loyalty," for the reason that it is fundamentally sound, and there is a great deal that is being written today concerning efficiency that is more or less, I won't say superficial so much as it is isolated and technical.

Now we have got to throw this movement of personal efficiency back into the larger category of life and living, and we have got to reorganize our whole industrial process so that we can capitalize loyalty, and in just so far as there is any success attached to the Ford Motor Company's plant it is because they capitalize loyalty in the lowest strata of the industrial order by paying a living wage.

MR. BACON: I want to say just a word, if you please, with reference to the work of the accountant. I want to say it in this way. I want to answer a question that you are putting to me now, what is the use of an accountant getting up here and saying things just now when we are interested in something else? You are operating men, or most of you are efficiency men, dealing with the operating end of things, and you are always looking into the future. You are dealing with the immediate present, the tremendous present, how to get things started, and you are dealing with the future, how to prepare the way for larger production, and it is all present and future. You are live men dealing with a live problem and dealing with a diversified problem, for it is changing all the time, just as life changes.

Now the accountant is by temperament and by training and by choice, and by every other element a recluse, an historian; he lives in the past. He sees what has been done. Now for that very reason the man that looks to the future can't sympathize with the man that looks into the past, but that is the very reason why we should get together, just because we are temperamentally opposed. The accountant is just trained for this, to write the history of what you living men have done, and to write it in such a way that you fellows that are impatient of figures, that are temperamentally, as I say, looking into the future rather than into what has been done, writing the story of the operations in such an interesting way that you can't take the time to look over the trail, what you have done, the real results of what you have done. Take time, if you will, away from the present and the future, to really study the accountant's story of what has been done. If he is a good accountant he will tell you his story in a few words, and he will give you the true significance in a few words. You will be infinitely wiser for having learned accurately in detail what you have been doing. There is

just an analogy that you might draw here. It takes steam to run a steam engine and that is what you generate steam for in your boiler, but you have a little column of steam that you divert from the engine to run up into your steam gauge. That doesn't produce any power. If you analyze the power producing property of that thing you wouldn't get anything, and yet you would not think of running a boiler without having a steam gauge. It just takes a little bit of your thought to turn away from the immediate present and the future, and to look back into the accountant's figures to see what you really have accomplished with his help in order that you may wisely plan for the future. (Applause.)

THE CHAIRMAN: I have already revised my schedule several times and changed it during the meeting. We have passed the adjourning time, and I am sorry that the remaining minutes are so few, but we must hear from Miss Florence King, President of the Woman's Association of Commerce. (Applause.)

MISS KING: Mr. Chairman, Gentlemen and Ladies: I thank you for an opportunity to just say a word, and I will try to keep within the time limit which the speaker has said we would have. I have been greatly interested in the subject that you have been discussing here this morning, and especially so that the human element is now to be considered in industrial preparedness. I think that is one of the big things that should be before this body while it is in conference, and evidently it is. You have touched upon several phases of that. You have talked about the technical training of your men and how to get them into business, that you must induce the business man to receive the technical product when you have finished him.

Now this is one of the things that comes home to me, and not because of my own personal experience so much as I see it among all. We are living in one of the most critical hours in the world's history. Everything is being changed. We all think and speak in terms of our own experiences. You men have been discussing your problems this morning. You have overlooked one of the things that this war is going to bring directly home to you. It is no more my problem than it is yours. We heard from a splendid speaker here yesterday that the women were going to be called into the industrial enterprises more than they ever have before in the world, and that certainly is true. They are not technically trained for many of the things that they are going to be called upon to do, is also true, but those of you who have been interested at all in following the experiences of the industrial institutions in England, know better perhaps than I do what an important part women have played and are now playing in all the industrial activities of England. Lord Northcliffe said a very short time ago that if it were not for the women's work in England, England's industries would be paralyzed today, and I think that is not exaggerating it. Now we are confronting the same situation in the United States. Perhaps many of you men are engaged in lines of business where ultimately you will employ female labor. Whether you do or not makes no difference; you are going to do it in the future, and it is upon that subject that I wanted to say just a few words.

The traditions of the past have had so much to do with the position that women occupy in the business world that I am not willing to place any blame

upon women if the question of efficiency arises and you find that they are not as highly developed, they are not as efficient in the different lines as you men are, because you are trained from little boys to know that some day you are going to have this work to do and you prepare for it. But let me suggest, not in any way of criticism at all, that it is the tradition of the past that causes all these things. How much in preparing this conference you have done to divert the women from the very thing they ought to have. This little leaflet was handed to me as I came in and while I was sitting here I noticed that you will have a musical tea for the ladies this afternoon where they will be pleasantly entertained. Now if I were to tell you just what I think of a musical tea for ladies, I know every one of you would say I was not a lady (laughter), so I am going to leave you to guess what it is. I mention that just to show you how much you men do to make women inefficient.

Now the subject that you have this afternoon, "Employment Problems," why that is just the thing that every one of those women ought to know something about, and yet you provide an entertainment for them somewhere else at a musical tea. Why, a musical tea means to me that I think the froth on a glass of beer means to you. (Laughter.) I wish there was some way of calling off your musical tea and bringing every one of those women here to hear the splendid talks you will have this afternoon, and likewise while I wouldn't want to wish a misfortune to anybody's automobile, but I wish something would happen that they couldn't go out on the automobile ride tomorrow to Lincoln Park or somewhere else. You can see the park and the whole outdoors, it is so beautiful this time of the year, but it is not necessary to provide a special entertainment of that kind. I say that in all sincerity, because I say they would learn so much more if they could be brought in here and hear what you men have to say about employment problems and how to solve them, because they are going to have to enter into some of these things and help to solve them. With the readjustment of all of our industrial affairs, you know that you are going to have to come to this. You are going to have women in your business, whatever it may be. You are going to have to take them as unskilled labor. Now, as some one has said here today, when you take a novice into an office, of course it is not possible to pay that novice what he thinks he is worth. We all know that he thinks of that in terms of his own experience, because it is how much can he get along with and pay rent, living expenses and so forth. He just has to have so much money. So it is with these women. We know the condition that exists in the business world, and when some of you men employ a woman you have done it because you will pay her less wages to do the same work. That is not giving us a square deal, and I do feel the least that any industry could do would be to exact the same service, but give the same compensation. (Applause.)

Now that women are coming in at this time when these problems are being forced upon women—you know women didn't bring this war on, but we are going to be called upon to help carry its burdens just as you men are — but do any of you know in the history of the world when any government, any nation was in war, that that

government called upon the women to help finance the war? Never. But you know they are doing it today. They have set aside a part of this bond issue to be sold to women. They have already interested women to go out and sell these bonds to women. They must be sold and they are urging it just as insistently as they are to you men. Now I have no criticism of that. That is all right. We get the protection of our government just as you do, and I have no word to say against that. That is the way it ought to be done, but I do wish that a time might come when all of these things might be equalized, and where we take equal responsibilities that we might have equal compensation and equal recognition all the way through. I may perhaps be a little more fortunate than many of my sisters in having been engaged in business here for so long and in a line of business where I come in contact with business men every day. I know the ways that men have found successful in their business, and I have tried to study them just as carefully as I know how. Just as some of you men have said, you were not technically trained when you started, but you have gained your knowledge from practical experience. So have I. I say again I am not interested in musical teas. I am not interested in making lace for pillow shams or frosting for cake, or anything of that kind, and so when opportunity comes along of hearing you men analyze the problems of the day, it is wrong that we can't have this whole room filled with women so they would learn how you analyze and how you get results. That is what they should know and what they will have to know in order to get out and meet the responsibilities that will be placed upon them. As you know, if this war goes on these women who are going into industries are not only supporting themselves, but every one is supporting some one else, dependent parents or brothers or sisters, and many a woman is supporting a family of little children. If there is a human element that needs greater consideration at this time I do not know what it is. So if I can only leave with you the idea that you keep that in your minds, and where you have a chance to give the woman an opportunity, exact the same service from her that you do of your men, but give her the same pay and give her the same opportunities, and I and many will be very grateful to you. (Applause.)

MR. PORTER: I thought it would be of interest in connection with Miss King's talk to tell of the stand that has been taken by the Detroit Executives' Club on this matter. They authorized about two months ago an investigation of Detroit industries looking to the possibilities of the substitution of men with women. The staff of the Club has been busy during the interval in making a rather extensive survey of plants who were willing to be surveyed in this connection. The managers in conference representing some of the leading plants in Detroit adopted as one of their principles equal pay for equal work, and I think most of the manufacturers in Detroit are committed to that principle.

Just one further thought, that already we are finding that women are not only capable of performing equal service, but superior service. They are leading the way to newer and higher standards of efficiency, because they enter industry freed from the traditions that have held men back for generations. The young man who starts to work, if he is ambitious and wants to

let himself out and do his best, very soon is brought down to earth, as a rule by his older fellows, who have been soured and embittered and a good many are earning three and four times as much as the men ever did; they are earning as much as \$45 a week, where men were satisfied to earn \$17 because they have let themselves out, and they are doing four and five times as much work as the men ever did. It is a very interesting fact. (Applause.)

MR. SEGUR: I move that we extend to the women of Chicago an invitation to attend any or all of these meetings which they desire and that we give to the women of Chicago the privilege of attending either the meetings held here at the Auditorium or the entertainment features which may be provided.

MR. HANSON: I heartily agree with the spirit of the motion. Might I remind you that our invitation already is extended to both men and women? I think this is just a suggestion rather than a new matter for the Western Efficiency Society to take up. I would like to see that made as a suggestion, that the committee reiterate its invitation and again bring it to the attention of the women.

THE CHAIRMAN: We will put it as the expression of this Round Table. All in favor say aye, contrary, no. The motion is carried. I should like Miss King to know that invitations to attend this conference were sent about ten days ago to all the Women's Clubs in Chicago.

An adjournment was then taken.



W. A. GRIEVES

FOURTH SESSION

Thursday Afternoon, May 24, 1917.

Mr. F. M. Simons, Jr., Chairman.

CHAIRMAN SIMONS: I believe it is the attribute of a good Chairman at a meeting, and especially where we have such good speakers, to efface himself at the outset, and I shall at once introduce Mr. Grieves, Assistant Secretary of the Jeffrey Manufacturing Company, Columbus, Ohio. We are exceedingly fortunate in having with us a man of Mr. Grieves' experience and achievements, and I am very happy to introduce him to you this afternoon. He will talk to you on "Stabilizing Our Labor Units." Mr. Grieves. (Applause.)

MR. W. A. GRIEVES: Mr. Chairman, Members of the Western Efficiency Society, Ladies and Gentlemen: It would be stating a platitude on my part to say that I am delighted to be with you. I am. I have been tremendously impressed with the splendid spirit of honesty that has characterized the different sessions thus far in your convention. I was somewhat concerned, however, in some of our sessions yesterday, about the over-anxiousness on the part of some of us in regard to government matters. Now, it is customary for us, and we have some foundation for believing that there is too little activity, particularly at such times when we have such momentous questions as we have today brought up, to criticize the activities of government. I for one feel very optimistic about the situation. I feel that the government is not going to overlook the men who are really valuable in this crisis. I think that Secretary of War Baker or President Wilson is not going to overlook such men as Harrington Emerson, C. E. Knoeppel, Mr. Edison, and all these other men, leaders in the great efficiency movement of today. I believe these men have not only been consulted, but will continue to be consulted, and that when the proper time comes, that their wisdom and their experience will be called upon to help solve the pressing problems of today. I want to say that I do not know how you feel about it, but I feel very optimistic. These men are not going to be overlooked. They are big men. And your Western Efficiency Society, I believe, is not going to be overlooked when the proper time comes for you to be of assistance, and I think Mr. Knoeppel in his splendid address yesterday gave us sufficient evidence of that fact.

Now, to my cup. I would much prefer to speak extemporaneously, but it is so hard for those of us business men who are not accustomed to speak, in public, that I have written what I have to say. I was a few moments ago, in our room, when I asked my good wife where my speech was. I couldn't find it for the moment. I thought perhaps it had been lost on the

way over. I began to feel a lot like the gentleman from Minnesota, the other day, who came down from the Masonic Conclave at Columbus. He was the principal speaker of the occasion and when called upon he said that he was very sorry to state that he had lost his speech, that he had written what seemed to him to be the best speech that he had ever written. He found that in his travel down through Columbus, that somebody had taken his suit-case, and he had gotten hold of somebody else's. He was greatly dismayed to find that it was Gladys's suit-case, and the material contained therein was somewhat embarrassing to him, but he was consoled when he found some agreement between them, when he found Gladys's cigarettes and his were of the same brand. (Laughter.)

I have what I have written, gentlemen, if it is of any interest to you. (Applause.)

STABILIZING OUR LABOR UNITS.

Present-day industrialism is marked by the rise of an unmistakable desire for better things. The air is charged with the spirit of a broader conception of the rights of others. A glowing ambition has taken possession of our industrial activity. It is not ambition confined to the limits of sordid self-aggrandizement, but has as its aim the fundamental good of the class. It is the culmination of the effect of the various influences that have been at work for many decades, and the practical working out of its ideals is one of the best evidences we have of our industrial and social security. It is the humanizing of industry. We are proud of it. Its coming increases our faith in each other, although it has had to climb over rugged walls of selfishness and indifference in reaching us. It may be that this selfishness and indifference has given rise to the need to which this spirit is an immediate response, and consequently the desire to improve conditions appeals not only to our sense of fraternity, but also to our good business judgment.

At the very outset, therefore, we are confronted with the question, What is the objective? What are the means to be employed in reaching that object? Are the methods thus far adopted in line with ideas of permanency? That the purpose is intended to do good, would not be going much farther than stating a platitude. That is not enough. Intelligent service must have feasible aims. Further than that, even if the aim is definite, and we are agreed that it is desirable, it is important to know by what methods our purpose is to be reached. We may be perfectly in harmony as to the result to be obtained, yet there may be honest differences of opinion as to the feasibility of indicated methods.

Human engineering is an agency that has come into being as a result of demands made for the improvement of industrial conditions. It is a part of the crusade for the advancement of ideals of the people engaged in our great army of industry. It is an honest desire on the part of the better elements in our industrial life to emphasize the slogan that, "Industry is for humanity, and not humanity for industry."

The other day we attended a meeting of employers. The meeting was one of many that had been held to discover ways and means of creating

confidence between these employers and their employees. The chairman opened the meeting somewhat as follows:

"Gentlemen, I have been studying this so-called labor problem for a number of years. I have seen all sorts of schemes attempted to demonstrate to workmen that employers are really in earnest concerning the welfare of those whom they employ, that they want to pay the very highest wages they can and meet competition, improve working conditions in the shops and encourage other methods which will create the confidence we are seeking. But I believe we have not looked deep enough for the cause.

"In our factory, for example, there are a number of different nationalities. There are varying degrees of intelligence represented. The men in general are up to the average; but for some reason the whole force lacks homogeneity. There does not seem to be any community idea among them. Their aims appear to be diversified to a degree that indicates heterogeneity. There is a lack of unity and thought in our whole organization.

"The time has come when, it seems to me, we must do something more than pay the highest wages—something more than insure good physical working conditions in the shops. There must be something done to help our people realize that they are more than hired hands, carrying out more or less willingly the instructions issued to them in their daily work.

"I feel that as far as we are concerned something must be done to weld together the ideals of our people in such a way as will mean something to them.

"We have many of the so-called welfare activities which have been started by us for our employees, but the whole affair lacks a medium of co-ordination essential to stability. Our task seems to be to get our people to realize that we really are in earnest—that they are really as much concerned, financially and otherwise, as we are.

"Although we are paying the highest wages and our shop working conditions are the best, our employees do not manifest such interest as would indicate solidity as far as they are concerned."

Now this employer has expressed in a more or less clear manner just what lies, maybe unconsciously, in the minds of all employers who are trying to work out the question of better understanding of the human equation in industry.

The most exacting problem, therefore, before the industrial world today is that of stabilizing our labor units. And included in this statement is a deeper significance than that which may apply to the staying qualities of the man on the job, important as that phase of the subject is. We are hearing a great deal these days about labor turn-over due to the constant shifting of employees from one job to another, and it is vital that we heed the warnings of these men who have made such thorough investigations and given us figures representing such enormous economic losses. But there is emphasized at this time, due to the great international conflict, an increasing responsibility to look deeply for the real causes of industrial misunderstanding and instability.

The employer just referred to has caught a vision. He has called to our attention the fact that little permanent progress is going to be made in the

stabilizing of our labor units unless we go further than we have. Recent investigations have shown that eighty to eighty-five per cent of the shifting done by our industrial workers is confined to the lower grade of help. And figures have been recently secured which show that over seventy per cent of this lower grade of workers is made up of our foreign born. Take for example some of our leading industries. In iron and steel nearly 58 per cent of the workers are foreign born; in coal mining nearly 70 per cent; in the textile industries nearly 70 per cent; in clothing nearly 73 per cent; while in the railroad maintenance nearly 67 per cent of the laborers are foreign born.

The war is hammering home some very impressive lessons. We have boasted much of our being the great international melting pot for the millions who have been coming to our shores; but a close analysis will reveal the fact that the pot has scarcely been simmering, and the work of creating the spirit of true Americanism has not been done. We have neglected to furnish the fuel of patriotism with which the melting pot can be kept boiling.

One of our big questions, therefore, is, What is the employer doing to make this great industrial army a stabilized unit? These people are in the hands of the employer eight to twelve hours each day. What is being done to interest them in American ideals? What is being done to make them feel that their life amongst us is more than that of the nomad? This seventy to seventy-five per cent of unassimilated humanity is in a pliable condition; it is ready to be led in the direction of the strongest leader. Is that leader going to be the I. W. W. agitator? Is it going to be the unscrupulous soap-box orator; or is it going to be the man or the company whose opportunity it is to know and whose privilege it is to develop within the hearts and minds of these heterogeneous millions the true American spirit?

It is obvious that these brothers of foreign birth, upon whom we are depending for the great bulk of the physical development, cannot be successfully assimilated so long as American contacts and opportunities are closed to them through language limitations. Our first duty, therefore, is an individual plant census to find out how many workers do not speak English and are not citizens. If we do not have a night school in our own individual plants, cannot the community night school be established? If our shop hours do not permit of regular attendance, cannot they be so arranged that they will? Is it practical to have classes conducted within the plant on Company time? Would not the higher standard of work secured through this increased intelligence more than repay the financial expense? And similar questions obtain as to citizenship. Are we emphasizing the advantages of being an American citizen? In the hiring of this almost seventy per cent of our industrial workers are we not overlooking a great big opportunity in failing to emphasize the importance of naturalization?

As we have already intimated, we are looking to the men and women who are citizens of other countries to do the great bulk of labor in our most essential industries, and yet we are not awake to the fact that we are building these industries without regard to the permanency, loyalty and stability of those upon whom we must depend for successfully maintaining them.

To know how to speak our language and get the desire to become a citi-

zen will go a long way along the road to Americanization. Social and industrial justice, however, must prevail to win and hold the hearts of men for a new country. If we build model factories, perfect for materials and machines, and forget to provide pure drinking water, proper toilet facilities and comfortable eating places, we cannot hope to stimulate enthusiastic confidence in American ideals. It is only a few weeks since I received an announcement of the opening of a three-hundred-thousand-dollar club house for the employees of one of our large manufacturers. That is a good thing to do if the building and equipment were suited to the needs of the employees. But it isn't. Over eighty per cent, I am told, of the employees of this concern are foreign born, cannot speak English, and have never applied for citizenship. What a fine start that three hundred thousand dollars would make in establishing schools for the teaching of English in the homes and neighborhoods of those thousands of foreigners. How much of it could have been used in training those employees' families in the wholesome methods of our better American housekeeping. How many of that eighty per cent of foreign employees of this concern are going to participate in the club privileges of that more than quarter million investment? Mighty few! The immigrant employee knows this well, although he may not say so. He is more likely to quit in silence.

The other day I visited a factory that is typical of the consideration shown for our un-Americanized units. This particular institution employs only a comparatively small per cent of foreign speaking people—about three hundred, it was ascertained—and while every provision had been made for the safety and comfort of the American speaking employees, absolutely nothing had been provided in the way of wholesome sanitary comforts for these three hundred souls who had had the apparent misfortune of being born in another country.

It is certainly anything but a broad business policy that proceeds upon the theory that the class distinction that has been raised between foreign and native born can be obliterated so long as choicest locations are selected for factory sites and imposing buildings erected, and at the same time the men are left to live in hovels and bunkhouses in Hunkie town or Dago flats.

The time has come when we as a people must wake up to the fact that about thirty-five millions of our much-boasted one hundred million population is foreign born or the children of foreign born. It isn't a question of what we may want to do; there is an imperative demand for action. The only way in which these people are going to be stabilized in our industries is to Americanize them. To Americanize them means that equal consideration must be shown as is given our American born. I know this is not a popular doctrine, and the fact that it is not popular is the principal reason for our enormous industrial instability. So long as men are discharged without reason or recourse, so long as no effort is made to find out why men quit their jobs, so long as our industries are contented to carry the tremendous burden of millions of dollars every year in unnecessary shifting of workers, the assimilation of the alien is impossible. If a man has no patriotism for the country in which he makes his living, how can he have much patriotism or loyalty for the institution for which he works? If he has no loyalty for

the concern that makes it possible for him to make this living, how is it to be expected that he can be counted upon especially in trying periods such as we are now experiencing?

The trouble is we have not taken our own patriotism seriously. It has been taken for granted, so to speak, and as a consequence we have forgotten our responsibility to those who have come among us and to whom we are looking do the real manual labor of our wealth-producing agencies. In our desire to get rich and create wealth, we have overlooked our duty to create citizenship. Can we continue to neglect posterity for prosperity? If, as some of our thinkers contend, we have been extending our national power beyond the ability to defend it, may it not also be possible that we are extending our industrial power beyond the limits for which we have made adequate protection as it applies to our labor units? I believe it is.

It is unfortunate that in dealing with our human relations in industry that so few have caught the spirit of the times. Out of hundreds of employers who have visited our plant during the past year or two, it is surprising how few there were who caught the real big idea, as it seems to us in establishing that relationship that is to prove the permanent basis for stability in future industry. The predominating idea seems to be that whatever is done must be conceived, worked out, maintained and financed by the employer. Such a comparatively few employers have caught the vision of what can be accomplished by co-operating with the employee. The average business man seems to regard any step in dealing with human relations in industry as a sort of philanthropy. He fails to see that it is related to every division of production, and must be so accounted. The tendency is to confine it to the employment office, safety work, or recreational activities, failing to realize it is just as important a part of the whole scheme of production as his sales or financial departments. And the men usually placed in charge are of the kind that would not be tolerated for a moment in the sales producing end of our business.

One of our biggest manufacturers has made the statement that there were three very fundamental elements entering into the make-up of industry—men, money and machines. He has said that there is very little difficulty in getting money; that it was not hard to get machines; but that it was a tremendous task to get men. But we think that he did not go far enough. He should have added: "It is still a greater problem to keep men after you have once hired them." And this is the particular phase of this subject of human engineering to which we wish to direct our discussion.

To get before us the magnitude of the problem and of how vital it is in business to-day, we would like to mention a recent investigation that revealed a remarkable condition. It refers to our own experience and illustrates how organized co-operative effort can bring about the very things we are seeking to the end that our labor units may be made more permanent.

About seven years ago to maintain a force of 2,200 employees, our firm was hiring on an average of 5,000 employees each year. We began a systematic study of the causes entering into this tremendous shifting. We were convinced that something was wrong. We had prided ourselves on having a fairly scientific method of selection. We had gone on the assump-

tion that if a proper study were given to the placing of men at the beginning of their service, the employment problem was handled as best it could be. But we had not analyzed correctly. We had led ourselves into the belief that if the slant of a prospective employee's eye was at a certain angle, or his ears drooped at a degree scientifically correct, or that he had the proverbial high forehead, or that his jaw did not recede too abruptly, we had done all that was necessary in determining what was desirable in the way of selection, and consequently our problem was solved.

But you see we were trying to get a solution of our difficulty by studying an effect in the way of an excursion into the realm of physiological psychology, when we should have been looking into the real cause of our having to pay so much attention to selection. It finally occurred to us that if more interest were shown in the causes for men leaving our employ after they were hired, it would be more profitable than being so much concerned about selection, important as that phase of industrial management is. So instead of looking upon the employment office as being such an asset, we began to think that it might be, in view of our failure to locate the real reason, a sort of liability. Results proved the logic of our reasoning. We maintained that if John Smith came into our employ and in a short time left, there must be some reason for his quitting. In fact, he did quit to the extent of nearly three times every year. In other words, the whole force, numerically, turned over about three times annually. What was the cause? It could not be wages; for we had already learned that if we were to have competent men we must pay the best rate. It could not be that the general attitude of our organization was such as to produce a condition of this kind, for the spirit of our firm was good above the average. It was not because of lack of sympathetic understanding on the part of the management, for this general relationship had always been of the true spirit of mutuality.

A systematic study of the causes revealed the fact that this wholesale shifting was largely due to conditions that really concerned the relationship of the men among themselves. There were abuses existing in the various departments of which the management had not been aware. There had not been any general effort exerted by the foreman to deal with the men on the basis of mutual understanding. If an employee erred in the performance of a task, the old idea of discharge was resorted to. The realization was not apparent that the company had a large investment in the men discharged. There had not been any getting together of the heads of departments so that a broader understanding of their respective difficulties could be acquired. There had been very little attention paid to the troubles of the employees as related to their home life. No systematic study had been made of the cause of accidents and of how they could be prevented. There had not been any attempt to stimulate within the organization the spirit of aggressiveness as it could be applied to the employees initiating and developing enterprises for their mutual benefit. And yet, up to that time, we were counted among the more progressive.

After a systematic program had been conceived and put into operation, the turnover began to diminish. A thorough study of the causes of accidents was made. A hospital with trained nurses and physicians was estab-

lished. Foremen's meetings to discuss methods of closer co-operation were begun. If an employee did not make good in the department to which he had been assigned, he was given a trial in another at different work. If he was slow to learn, greater patience was exercised in teaching; going on the scientifically good reason that if he was let go, the opportunity of getting any one better was not probable. Judicious interest was taken in the home life of employees; not to the extent of exceeding the limits of desirability, but in all cases where real helpfulness would be appreciated. Employees co-operative enterprises, entirely under the control of themselves, were started. Full freedom in the outline of procedure was given. When any change in methods, effecting to a degree the work of the men, were made, the opinions of every man were solicited. Each employee understood that if he had a suggestion to make for the improvement of a certain condition, it would be given honest consideration. Many other activities were started of a co-operative nature that proved beneficial both from a physical and financial standpoint. For example, our employees' co-operative stores, restaurant and bakery, in which they are doing over \$325,000.00 business each year, and our employees' building and loan association in which they are going on an average of \$250,000.00 business each year, all started and operated by the employees themselves. And what was the result? Inside of six years the number hired to maintain the average force of 2,200 was reduced from 5,000 to 1,500.

Thinking that our own experience might not be a fair one from which to draw conclusions in the matter of labor turnover, we made investigation. We approached forty different firms in similar lines of industry for the purpose of getting their experience in this matter of turnover, only twenty of which were able to furnish definite data. The investigation revealed the fact that to maintain an average force of 44,000 men in these twenty concerns for the previous year, 70,000 were hired.

From the standpoint of waste you will readily appreciate the necessity of searching deeply for the cause of this shifting. The fact that millions of dollars are unnecessarily being spent annually in the changing of industrial forces, indicates not only the necessity of scientific selection, but also of greater humanity in handling. The call for men with broad intelligence and an understanding of the human element in shops and factories is urgent. Business men are awaking to the fact that the so-called labor problem is not so much of a problem after all. They are beginning to see that it expresses itself more in the form of a condition, and are convinced that when the causes of the conditions are removed, the problem adjusts itself.

What we need most is men educated to understand the human factor. The good business sense of our manufacturers is not going to allow them to continue to ignore the leak of millions each year through a source that can be prevented. We need men so trained for leadership that the less intelligent can be led to a higher place of thinking and working.

The trouble has been that the selling and engineering end of industry has called all our trained men, to the very great detriment of the producing portion. What we need as leaders among our shop forces are men of higher intellectual standing. The time is coming, in fact it has already arrived,

when the shop foreman will be required not only to be a shop trained man but also a college trained man. It requires just as big calibre men to conduct and handle the shop forces as it does the sales or engineering. In the past we have not thought so, but it is none the less true. Is it any wonder we have labor disputes? Is it any wonder that men have misunderstood their employer? The trouble has been that both have sat complacently and allowed themselves to be advertised by those who do not know—allowed themselves to be shown wrong side up, as it were.

You may recall many paternalistic enterprises that have been started as a solution of the so-called labor problem; but you will also recall that none of these has proved effective, and for the good reason that they were not fundamentally conceived. Any plan that smacks of paternalism cannot succeed. It must be a wholehearted effort to get to the bottom of discontent, and this can only be accomplished when the spirit of confidence is secured. The average man is at once more or less suspicious of any attempt to hand him something for which he was not looking.

Many of us are at least somewhat familiar with the early experience of those employers who introduced new methods of production and payment into their factories. We know how they were misunderstood. Some made the mistake of pushing the plans too hard—forcing them upon the men before they grasped the real purpose. Others were wiser and adopted the plan of getting hold of those men who were most intelligent and so instructing them that their influence and proper understanding made it easy to reach the more incredulous. And this is where the good judgment of the leaders called to handle men will prove an asset. Every organization should pay particular attention to the selection of their leaders or department heads, for as the head is, so will be his men. You cannot have an unintelligent department head and expect the men in that department to be up to the standard. Like begets like. We create as we think. If we think disorderly thoughts we have disorderly people and things about us. Men unconsciously gather about them people of their own viewpoint and disposition.

Men refuse, and they have a right, to be regarded as objects of charity or as parts of a great producing machine. Important as are different systems of present day production, and with all consideration for their industrial value and necessity, all must be built upon well defined principles, or in other words—the science of human relationships; and any system that disregards this, must fail.

Humanity does not differ to any great extent on the average. Men do not want to be paternalized; but they are responsive to kindly consideration. They may not manifest much enthusiasm at the mention of the company for whom they work; but if the leading personality of that company has shown itself to be human—to be interested in the troubles, joys and incidents that go to make up the life of the men who constitute the basis of its existence, there is a response that is really manifest.

If our labor units are to be stabilized, human relations cannot be separated from the whole organization and placed under the direction of one department. It must be a definite policy that has as its principle aim the co-ordinating of every element. There is no going to be much progress

made where the attempt is one-sided. When men are made to realize that there is practically no limit to their co-operative possibilities; when they are convinced that there is an absolutely honest desire on the part of the firm to share the fruits of combined effort, and when there is evidence of confidence in their ability to do a real work other than that of the grind monotonous, encouraging headway will have been made in the movement to stabilize. But this work cannot be done by either or alone. The task of industrial stabilization is to find that form of human relationship management that will make the foreigner a good workman and loyal citizen, and the American worker conscious of his latent possibilities. It is not impossible. In fact, it is not really difficult. It is being done. We have made splendid advance in our own organization. But we have avoided the slightest indication of paternalistic motive. We have emphasized the belief that the stability of our workers and a better understanding between them and ourselves cannot be created and permanently maintained by purchasing good will with such agencies, as the men themselves do not have a part in creating.

CHAIRMAN SIMONS: The next speaker on the program is Mr. Earl Dean Howard. He has been actively engaged in the past two years in working out a scheme of labor control in the Hart, Schaffner & Marx plant in this city.

MR. EARL DEAN HOWARD: Mr. Chairman, Members of the Western Efficiency Society, Ladies and Gentlemen: I should like to have it understood that the things which I am going to tell you about were the work of my own hand. I am simply one of a group of men who have been animated by a common idea, and together we have experimented for about six years in attempting to work out in a concrete and particular way, perhaps without always being conscious of it, some of the ideals which have been so admirably presented to you by Mr. Grieves. In fact, his address is a very excellent preliminary preparation to what I should say, and because of it I shall attempt to give you more of the particular difficulties and problems, and our manner of dealing with them, than I otherwise might.

The Hart, Schaffner & Marx labor plan, of course, is somewhat well-known. It has been in existence for six years, and considerable has been said and written about it, and it is my desire to give you, if I can, the fundamental principle of it before I get through. We are all, of course, thinking of labor problems, and of the purposes of industrialism right now, in terms of the war, and we are in the process of adjustment. The whole world of industrialism, the ideals and practices, we know are passing away, and they will not return again. It is the duty of all of us who have responsibilities to make this adjustment mentally as quickly as we can, to be prepared for what lies ahead of us. We have to guide us the experience of the countries which have been at war, particularly England and Canada. One of the things, I believe, that must have struck us all recently, has been the great change in England, in the relative position of labor in the country, as a part of that country. The visit of the British labor representatives to this city has recently called attention to that. Some public addresses and a great deal of writing on the subject has made it plain to us that labor occu-

pies a very much higher relative position, is much more respected, and is much more esteemed and regarded with much more equality by the classes in England than ever before. In fact, it has amounted to a revolution. And I think we are just becoming aware of it.

Now, it is quite likely that in this country something of the same sort is going to take place, and therefore in future dealing with labor and the labor problem we must take account of that. The reasons for it are very plain, and they are bound to be duplicated in this country. When the minds of men are suddenly turned from individual interests to a great common interest, a great patriotic interest in doing service for their country, they become different men, and their relations become different. Men who are doing their bit in the trenches or in industry, or wherever they are doing something in which the motive of public service rather than private gain enters, become different men. They become very much more self-respecting, they are much more respected by the people in the country, by all classes, and that is the reason why in England and Canada labor has become so much more esteemed and occupies such a relatively higher position. Its opinion is sought. It is asked to co-operate as never before. Now, those same conditions are going to prevail in this country, because men are going to have an opportunity to increase their own self-respect and measurement, because men are going to learn to subordinate their individual and even their class interests to the great common interests. We can't imagine that when the war is over we are all going back again to the old way of thinking, the old relations. We are going to be a very much more homogenous people. The differences between one class of men and another are not going to be so great as they were before, perhaps, and for that reason we must adjust our systems of industry to meet that.

Now, I am going to make these remarks because I think that in the experiment which we have carried on at our place, we have built, perhaps largely unconsciously, with this very thing; and perhaps are prepared for this change more than some others. We have dealt with all complex and organized groups. They are practically all members—that is, the manufacturing body, are practically all members of labor unions, and we deal with our people through the labor unions. Possibly the labor union is not going to be in the future the typical forms of organization, but this we do know, I think, that is, all of us know who have studied the problem that in the future we must deal with groups organized in whatever way they may be. We are dealing now with groups, perhaps, even though we congratulate ourselves that we haven't the union problem. Anyone familiar with a manufacturing establishment of almost any kind, knows that he is dealing with men collectively. They have common ideas, common purposes, and they have to be met in that way. Perhaps it is not quite so apparent that they are organized in unions, but they have that opportunity.

Now, after the war I believe that this is going to be true. That human beings are going to have to work in groups, and loyalty to the group and subordination of individual interest to the group is going to be very much improved and a very much more effective thing in the future than it has in the past. Whether we like it or not, we must learn to operate that way.

The day of the hero, the strong man who bends everyone to his will is going to pass, I think. It is in the air, the resistance to autocracy. It simply means the rule of a strong man given authority and power, whether he exercised that beneficently or otherwise, is going to pass. Whether for good or for ill we cannot say. We are going to be governed by representatives in a democratic form of government.

Now, inasmuch as every industry is really a form of government, in the past very autocratic, it seems to me this same spirit will have to permeate. Whether it will lead to greater or less efficiency we do not know, probably less at first until we know how to use those forces to produce efficiency. We will have to go through a long period of inefficient democracy, or at least some of those ideas, democratic ideas must be dealt with until we learn how to make them efficient. We are struggling now through this crisis in this country, struggling to make our representative government efficient to meet the situation, and we know that it can't be as efficient, as we are organized now, after years of neglect we know that it can't be as a highly organized autocracy, but there is no reason why there shouldn't be discovered in it a great many sources of strength which autocracy doesn't have. We are all delighted whenever we see a hint that the French, because of their form of organization, of democracy, and equality of the people, have a military superiority over the German, who has deliberately adopted the other type and subordinated himself absolutely to an autocrat. And I think we see that, and we realize that there is something in democracy which is stronger than any autocracy.

Now, perhaps, those ideas apply to industry, and our experiment in Hart, Schaffner & Marx has had to deal with the idea of representative government, and we have attempted to make the most use of that idea, to make the work as effective as we can, in the past six years, and we have had perhaps some success with it. We went at it first unconsciously. Six years ago there was a great strike in the city, including our plants. It was a very long and distressing conflict, as a great many strikes are. Most of us are familiar with them. And when it was over the company decided to adopt arbitration, not knowing a great deal as to what it implied. It was simply one way of settling the trouble, and we agreed to do it, not knowing at all what was going to be brought forth before we got through with it.

One thing which was done at that time made the experiment perhaps a little different from the ordinary arbitration experiment. The company suffered so severely from that strike, not only in the last part of the season—loss—but in the after effects, in the disorganization which had been created. In an industry such as ours, disorganization is very hard to repair. The industry is composed of a great number of small operations, each one of them often must fit in and co-ordinate perfectly with every other, and none of them are so highly important in themselves, but they are of vital importance in the whole process. If there is a stoppage of work in one point, the whole process is stopped. We had to meet that condition. So, in order to handle that situation and prevent stoppages and labor trouble of that kind, and keep the machinery going, a labor department was organized. That simply means that there shall be in the business a department which shall

be sensitive, more sensitive than the management can be, interested as it always is, of course, in efficiency and getting out the product, but a department which will primarily be sensitive to what is going on, and shall advise the management as to what is in the minds of the people, and shall forestall, if possible, any gathering storm, anything that is likely to cause a disturbance, and make suggestions as to the management, the acts of the management, so that the administration can be modified to avoid troubles. Then later on this department had to take the responsibility of representing the company before the board of arbitration, take its place in the government of the business.

Two arbitrators were chosen, one by each side, and because of the difficulty in getting the third man—we spent a long time at this, the people had been promised arbitration and the matter had been delayed for a number of weeks—we decided we would try what two men meeting together could do, and because the heat of conflict had been over for some time, people had gone back to work and were very busy, giving no thought to the trouble which caused the strike, and everybody feeling quite happy, these two men were able to agree perfectly on every point that was presented, and an agreement was drawn up, in order to provide, if any friction should arise in the future, that they should hear all the complaints that might come up, thus constituting themselves, without their knowledge at that time, a permanent board of arbitration, which developed later into the form in which we have it now.

It soon became apparent that they couldn't hear all the complaints which came up. The complaints were largely petty. They were not presented in any very elaborate form. They were simply registering the objections of some people to certain things which were happening, and it took a long time to hear them, and so machinery had to be devised to relieve the board from this tedious function. So after choosing a third member of the board and making it a court of appeals, we constituted another body, called our trade board, which should have original jurisdiction in all complaints arising, and only the cases involving some substantial matter or questions of principle should be referred to the board of arbitration, and that has worked very well to this day.

Now, the essential feature of the plan at the present time is that neither the company nor the labor unions dominate; that the final authority, the final direction in matters in which there is liable to be disputes, is given to our board of arbitration, and they represent the final authority. Of course, they are subject to the constitution or agreement which we operate under. The written agreement runs for three years. It happens to run for three years each time. We renewed it last May. It was the second renewal, and this lays down the fundamental principles under which we operate, and which the board interprets to both sides, and we all submit to it.

That gives us an opportunity to say to the employees, "The rules under which you are working, the conditions under which you are working are just as much of your own making as they are of the company's making. Therefore, you owe as much loyalty to them and the observance of them in good faith, as the company does. If the company sets the example of yielding

whenever a decision goes against them, of submitting to all these rules, no matter how it may interfere with the spirit of the business, you ought to do as much." That, I believe, has a very good effect. It certainly has upon the leaders who represent them. There is a certain responsibility placed upon them, which makes them quite conservative in a way, because they wish to get a reputation for acting in good faith.

The machinery of complaints is something like this: Whenever an administrative act of any sort is inaugurated by any official of the Company, no matter how minor he may be in any of our plants, the people have a right to make a complaint. They have a right to make a complaint about any change which may arise in the shop, of any kind whatsoever. These complaints are made to the representatives, and the representatives present them to the labor department, and here they get their first sifting out. Whatever adjustments can be made there are made, and the labor department has the authority to carry them out. Of course they have all the decisions of these Boards to work under. They have the agreement, and it is the duty of the labor department to apply it to his particular case. In case the two dispute, and can't agree, the matter is then by mutual agreement taken to the trade board. There a hearing is had, presided over by a neutral man from the outside, and he gives a decision. Either side have the right to appeal from that to the Board of Arbitration. An appeal creates an occasion for laying down new principles or for corroborating old ones, and thus we are perfecting the instrument all the time. In the matter of prices for piece work where there is trouble, we have created machinery by which this same neutral Chairman of the Trade Board officiates as the Chairman of the Committee, and all piece work prices are made by that committee.

In the matter of discipline the system is this: The Company have the right of initiation of discipline of all sorts. That, however, is centralized, and in an efficiency society it is not necessary to say anything about the very great good effects which have come from centralized foremanship, especially the value of discipline that is all centered in the labor department. The officials of the Company who come in contact with the people who have to maintain discipline, have the right to suspend from the pay-roll any offender, but that suspension doesn't amount to a discharge; it isn't so considered. It puts the case up to the discipline official, and he makes a judgment. He has full power to suspend him if he sees fit. The appeal from him lies to this Trade Board, and another appeal if necessary to the Board of Arbitration.

Further, through this course of what seems to be quite complicated machinery, the matter of discipline is handled without creating unnecessary friction. This, after all, is one of the points at which there is usually great friction and great difficulty. It also has worked out so that the efficiency of the shop, the relations between the foremen and the small executive officers who come in contact with people, is very much improved, because the foreman is no longer a disciplinary officer, and his relations to the people can be very much different than otherwise.

There are a great many points, of course, which we had to work out, and a great many difficulties have been encountered, but so far they seem

to have all been met very successfully by the system. The one thing over which we all rather congratulate ourselves is the development of certain leaders among the people. One I could mention who is now the International President of all clothing workers' unions, who developed up under this plan, and who developed a great sense of responsibility and patience, and has set the example to all other minor leaders, which they try to follow; the majority do.

In order to get the full principle squarely before you, I have emphasized particularly how the administration of a large industrial plan is like a problem of government, requiring all the principles of government to be brought in play, and requiring that all the forms of government shall be efficiently carried out. I can do no better, I think, than to review the preamble of our Agreement, which was written by the Chairman of our Board of Arbitration, and to my mind is a really classical statement of the purposes of such a society.

(Mr. Howard then read the preamble of their agreement.)

THE HART, SCHAFFNER & MARX LABOR AGREEMENT PREAMBLE.

By Mr. J. E. Williams,
Chairman of The Board of Arbitration.

The parties whose names are signed hereto purpose entering into an agreement for collective bargaining with the intention of agreeing on wage and working conditions and to provide a method for adjusting any differences that may arise during the term of this contract.

In order that those who have to interpret this instrument may have some guide as to the intentions and expectations of the parties when entering into this compact, they herewith make record of their spirit and purpose, their hope and expectations, so far as they are now able to forecast or state them.

On the part of the employer it is the intention and expectation that this compact of peace will result in the establishment and maintenance of a high order of discipline and efficiency by the willing co-operation of union and workers rather than by the old method of surveillance and coercion; that by the exercise of this discipline all stoppages and interruptions of work, and all wilful violations of rules will cease; that good standards of workmanship and conduct will be maintained and a proper quantity, quality and cost of production will be assured; and that out of its operation will issue such co-operation and good will between employers, foremen, union and workers as will prevent misunderstanding and friction and make for good team work, good business, mutual advantage and mutual respect.

On the part of the union it is the intention and expectation that this compact will, with the co-operation of the employer, operate in such a way as to maintain, strengthen, and solidify its organization, so that it may be made strong enough, and efficient enough, to co-operate as contemplated in the preceding paragraph; and also that it may be strong enough to com-



I. A. BERNDT

mand the respect of the employer without being forced to resort to militant or unfriendly measures.

On the part of the workers it is the intention and expectation that they pass from the status of wage servants, with no claim on the employer save his economic need, to that of self-respecting parties to an agreement which they have had an equal part with him in making; that this status gives them an assurance of fair and just treatment and protects them against injustice or oppression of those who may have been placed in authority over them; that they will have recourse to a court, in the creation of which their votes were equally potent with that of the employer, in which all their grievances may be heard, and all their claims adjudicated; that all changes during the life of the pact shall be subject to the approval of an impartial tribunal, and that wages and working conditions shall not fall below the level provided for in the agreement.

The parties to this pact realize that the interests sought to be reconciled herein will tend to pull apart, but they enter it in the faith that by the exercise of the co-operative and constructive spirit it will be possible to bring and keep them together. This will involve as an indispensable prerequisite the total suppression of the militant spirit by both parties and the development of reason instead of force as the rule of action. It will require also mutual consideration and concession, a willingness on the part of each party to regard and serve the interests of the other, so far as it can be done without too great a sacrifice of principle or interest. With this attitude assured it is believed no differences can arise which the joint tribunal cannot mediate and resolve in the interest of co-operation and harmony. (Applause.)

CHAIRMAN SIMONS: The next speaker on the program, Mr. Magnus Alexander, was to talk to you on the subject of "Labor Turnover." It speaks very well for the general state of preparedness of the Western Efficiency Society that we are able to substitute on very short notice, in the unavoidable absence of Mr. Alexander, another speaker in whom you will not be disappointed. No formal introduction is necessary. Mr. Berndt's paper deals with the same topic covered by Mr. Alexander, "Labor Turn-Over." I feel that we are very, very fortunate indeed in being able to have Mr. Berndt to present this subject.

MR. IRVING A. BERNDT: Mr. Chairman, Members of the Western Efficiency Society, Ladies and Gentlemen: I sincerely regret that Mr. Alexander is not with us and more sincerely that I have been offered as a substitute. I could hardly be so ambitious as to make up for his loss in this program.

This paper was written some time ago, and while it is entitled "Labor Turn-Over," probably should more satisfactory be entitled "Factors Influencing Labor Turn-Over." (Applause.)

FACTORS INFLUENCING LABOR TURN-OVER.

I. A. Berndt,

Manager Betterment Department, Joseph T. Ryerson & Son.

Time was when a new man was hired by the beckoning motion of the foreman's hand. He had a job. And he was fired by a scornful glance from that foreman. He had no job.

Under such conditions a new man was considered even less than a new machine. At the risk of repetition I will again use a simile which I have used many times before, but which I have not been able to improve upon, i.e., the new man and the new machine. A machine costing \$1,500 was seldom bought without at least some consideration, without looking into qualifications as compared with requirements and without decision by the best intelligence in the organization. The new man who was so quickly, easily, and unceremoniously chosen, if employed for a year, or two at most, would represent the same investment, with the possible exception that payment was made in weekly or bi-monthly installments.

Then why the difference? May I suggest it? The machine, if it did not fit, was a white elephant, a burden, could not easily be unloaded. The man, if he did not fit—and how many did not, how many were unjustly considered unfit—could be dropped at a minute's notice. No loss, no responsibility; just another man to be fired.

We have been warned that it was dangerous and unjust to make a machine of the man.

I wish to say that it were far more just and fair to the man had he been considered even as much as a machine under that regime.

And after the man had entered the plant or factory, what was his fate? Only this, he must work out his own salvation. He carried the entire responsibility of his current productivity and welfare, as well as his future progress.

If he did not have the ability and qualifications it was assumed he did have, it was his fault. If he was physically or mentally unfit for the job, he and his alone must suffer.

If conditions were detrimental to his health and safety, it was, as many of us have heard stated not so very many years ago, his "own funeral."

As to his actual work, efficiency, and production, here again he carried the entire responsibility. The equipment and facilities he used were provided, it is true, but with little or no consideration as to their adaptability to his peculiar requirement.

Methods he used and applied were those he brought with him, which had been handed down to him by his forefathers—unscientific, laborious, fatiguing rule of thumb methods, in great numbers of cases harmful to his health and body, to his intelligence and development, and certainly detrimental to his productivity and highest efficiency.

He might, of course, in his travels from one plant or factory to another, pick up a good point here and there. This was the long drawn-out process

of what was termed "getting his experience." His employer, however, rarely took great interest in this.

Average conditions surrounding production were what would naturally follow a combination of a passive interest and acceptance of available equipment and an uninterested acceptance of such workmen as offered themselves, their inherited and unstudied methods and even their own tools in most cases.

In other words, it was the following of the line of least resistance. Little initiative on the part of the employer, and only a limited opportunity for the employee to improve his condition.

It is true that where day wages were paid, the immediate financial loss was wholly the employer's and the employee suffered only insofar as the limitations to possibilities of increased earnings. However, even in this respect, we all know of the arbitrary piece rate methods of wage payment, which made the employee carry the burden of all losses due to inefficiencies of all kinds inasmuch as he was paid only for what he produced.

My description of conditions in those days may be criticized as exaggerated. While granting that there were exceptions I believe you will agree with me that they were in the very smallest minority, and even in this day of enlightenment in industrial activities there are plenty and more of such conditions to be found.

I have painted this picture in deep colors intentionally so that the contrast may be more striking.

Is it any wonder, then, that where the above description more or less correctly fits the case, that the labor turn-over percentages should be so great?

Is it not logical and understandable that literally dozens of men and from that down to at least three, were employed annually for each man retained on the regular payroll?

I see nothing in such management which would encourage and foster loyalty in the employee or even more than a passing interest in his work. I see no reason why men working under these conditions should remain long in one organization. His progression could seldom be within an organization. It must be through moving from one place to another, either through force of circumstances or because of the natural desire to improve his condition with which most humans are imbued.

In other words, he had little opportunity or encouragement to improve himself in a single organization, so he must try this, that, or the next, starting anew, over and over again until he either very accidentally found his vocation, or unfortunately either because of age, loss of ambition, confidence or faith, or a hopelessly soured nature, he found a rut and remained there forever and ever. Had there not been many of the latter type, the labor turn-over percentage would have been even greater than it was.

And now, before leaving this rather depressing consideration of what was, I wish in passing to say a word of appreciation in which I know you will all join me, of those men who, under the conditions described, did not fall into the rut, and who rose, through their own strength of character and will, from the ranks; who are even now employing and handling the

laborer to whose number they once belonged. I believe they are to be commended and deserve great credit. They did it with the odds against them. They were supermen.

It would be difficult to say just how far back the birth of the new industrial day may be dated, but it certainly had not attained even a measurable growth until some time during the last ten years.

It would also be difficult to say accurately just who fathered this new reorganization. Surely no one individual. The problem was and is so big that it certainly could not be within the scope, intelligence or time of any one man to solve it completely, alone.

I believe that various individuals have approached various angles of the problem, each in his own way, and it has been largely due to the efforts of such organizations as this, and the activities and interest of its members, that we are finding a new intelligence and appreciation regarding the labor problem in industry today.

Certain it is, of course, that there stands out in this work many names of men deserving of credit for their particular efforts and far-sighted application of wisdom to this important problem. I regret that time does not permit me to list these names and their creditable additions to industrial progress. I know that many names of those present would be included in such a list.

The solution of the labor turn-over problem, I believe, revolves around certain broad movements and developments in industrial affairs which, if they did not receive their start during the last ten years, have certainly gained impetus and recognition during that period, which made for a development far greater than during any similar period, and which is responsible for the present-day improvements in industry and manufacture.

Let us consider them in turn:

1st. The careful, analytical, and scientific selection of employees, including character analysis and the application of psychology to this problem.

2d. The movement for efficiency and the development of what is known as Scientific Management in business.

3d. The Welfare and Sociological work.

4th. The Safety movement, including also the Health and Sanitation propaganda.

5th. The corporation, industrial and apprentice school movement.

Each one of these movements and all groups and individuals interested in them have seen and studied a different feature of the **man** problem.

Naturally in many cases their work has overlapped, but for the main, each division has specialized on certain definite aspects of the problem.

Naturally, too, they have each felt the importance of their interests and may have even become imbued with the feeling that their particular work was most and alone important.

However, are not their interests common? Are we not all engaged in a larger sense in an attempt to understand the man, his qualifications, his interests, requirements and welfare?

Let us consider these different movements and their developments separately.

First, the proper selection of employees. It would be difficult to say what influenced employers most in their acceptance and recognition of this worthy work.

We know that the results of researches and investigations time after time have proven that it costs in dollars and cents anywhere from \$10 to \$300 to hire and fire a man. We know that these researches have pointed out that there was a money loss caused by unintelligent selection due to:

1. Cost of hiring;
2. Cost of training;
3. Reduced production during training period;
4. Impaired quality during training period;

and many other factors.

We know, too, that it has been advocated and agreed that the employer, in hiring a man, accepts a definite responsibility to that man as well as to the community as a whole. He must not take a man's time unless he knows that man is qualified and competent to do his best work in the vocation and job for which he is selected. The man must not be permitted to get into a rut. He must progress and develop. The community must not be burdened with discouraged and incompetent individuals, unable to earn even a livelihood and without faith in God or man.

The psychologists have pointed out that man's mental characteristics vary widely and that until you have matched the individuals having certain qualifications in that direction with vocations and jobs requiring such qualifications you will not have done right by either him or his employers.

Those advocating character analysis have at least interested the employer in their arguments that various men have varying physical indications which can be analyzed to great advantage in studying a man's character and to help fit him to a job in which he can make a satisfactory progress. It is pointed out that a man must be happy in his work.

As stated before, it is very difficult to say just which of these arguments have convinced the employers of labor most. Probably not any one in all cases, and no doubt a combination of all in most cases.

Suffice it to say, however, that we do find, not only an interest, but a definite activity in this work as evidenced by the many organizations of all sizes and kinds which are giving this feature attention all over the country. In Chicago it is especially evidenced by the Employment Advisers' Association.

The success of this work has been proven time after time. We read and are told day after day of the results, and we do not find organizations reverting to the old hit or miss methods once they have started to consider the careful selection of men.

Let us consider the efficiency movement. How has it affected Labor Turn-Over? What particular aspects does it study?

In my understanding it attempts to analyze the job to be done, the work to be performed, and the equipment and methods which are being used. It attempts to improve the methods and conditions of work as well as the equipment and tools used so that the work can be done by the man with less

effort and fatigue and in less time. Its ambition is to make work agreeable to each workman.

It attempts to standardize practices and methods so that the qualifications required in a man for a job can be given to the employment department for use in selecting the right man for the job.

It offers the standard practices for use in educating and training men to do work in the best way according to best practices. Also for use in educating men for advanced positions. It advocates the employers' acceptance of the responsibility to teach men these best practices, finding them for him and making it unnecessary for him to go from one shop to another to pick them up himself.

It standardizes quantity and time of production so that the men can be paid an equitable wage, each one according to his individual effort.

It provides for an accurate recording of costs of production so that each workman's activity can be fairly judged.

It advocates the employers' acceptance of all responsibility as to ascertaining and following best show practices and systems, such as planning work to be performed, routing material and jobs correctly so as to eliminate delays, etc. The employee no longer is burdened by this responsibility.

It lifts the burden of these responsibilities from the shoulders of the workman and places it upon those of his employer, where it properly and more effectually belongs.

There are, of course, excellent and convincing arguments in favor of this work, both from the aspect of financial return and the justice of it to industrial workers.

Here again there is uncertainty as to just which arguments have gotten for it the most recognition. It is obvious that it is fundamentally based on righteousness and that it pays.

It is with great pleasure that I record an impression that the future success of this work lies, not so much in influencing and educating the employer and manager of labor to accept it, as in the study and standardization of the processes with which it is to be accomplished.

It seems hardly necessary to say more than a word about the effect of scientific management on labor turn-over. The results are so logical. If a workman has been fitted to a job requiring known qualifications which he has; if he is trained and assisted to do the work according to the best known processes; if equipment and facilities are provided which have been selected with a view toward decreasing the fatigue usually resulting from the performance of his duties; if there is known and in effect an equitable basis for wage payment which pays him for his own individual efforts; if efforts are made to remove all delays or obstacles standing in the way of his largest production; if he is given every incentive, opportunity, and inspiration to do greater and better work; if adequate records of his performances are available so that he is assured that he will not be judged unintelligently; if he has the confidence that his employer, through studies and researches in efficiency, offers him opportunities to use practices and equipment in his work as good as, if not better than, he could find in other organizations; if

all this has been done, what excuse does he have for changing his employment? There are few plausible reasons remaining.

And now a word about welfare and sociological work. It has been found that before we can really understand the workman, we must appreciate his problems of life. We must understand his viewpoint and know his environments. It has been found that the efficient workman is he who is satisfied, happy, and not distracted by disturbing worries and troubles resulting from lack of opportunity and training in principles of right living.

This movement advocates that the employer should take the responsibility of study and research in this field and give his employee the benefit of a service which will tend to inspire and help him to enjoy the better things in life.

It may not be universally accepted as necessary or effective and may never be considered as practical in some cases, but it is being followed and successfully developed in so many organizations, particularly the larger ones, that it certainly can no longer be considered an experiment.

Its effect on labor turn-over is evident. Most of a workman's outside interests have to do with community affairs. If they are agreeable he will have no incentive to move from one section to another, which continuous moving is in itself one of the great disturbing elements entering into this problem.

Closely associated with welfare work is the important Safety and Health propaganda.

This movement proposes briefly that the employer employ only safe men and men physically fit to do the work for which they are employed, and after they have been employed, to take full responsibility for keeping them safe and sound in body and limb and at least as healthy and physically fit as when they entered his employ, if not more so.

It insists that the employer must provide safeguards on equipment, safe and sanitary working conditions, that he must educate the man to think safety and to work safely, that he must examine a workman's condition of health when employed so that he may not be put at work which will aggravate some existing illnesses, and that after he is employed he must have medical supervision to keep him well.

To ascertain the success of this work, one need only to look around on all sides and see the popular sentiment in favor of "Safety First." To study it further, one might read into the records of the great National Safety Council and learn of its four years of creditable work, as well as the activities of its 2,500 and some odd members all over the country. This speaks for itself.

Need I say much about the effect of this work on labor turn-over? A man should and will prefer to work where conditions are safe and healthful.

His employer must have the satisfaction not only of the knowledge of having performed a work worthy of his best efforts, i. e., the conservation of life, but he finds it is a good investment as well.

Looking further into the future, corporation schools, vocational and industrial apprentice schools, are attempting to prevent the misfits in industry, are proposing to equip the young man early in life with a training which

will fit him to perform that work for which he is best suited, most effectually.

Those who are behind this movement, enthusiastically urge that employers must in all justice accept this responsibility in anticipation of improved conditions in industry in the future.

This work is also more than experimental, as evidenced by the results of those pioneers who have proven that it is not only worthy and right to train the young man who is to be the worker of tomorrow, but that it pays in dollars and cents both him and his employer.

Its effect on labor turn-over must be apparent. Our average American workman is eager to learn and he will go and **remain** there where he can not only receive his industrial education, but use it to best advantage to earn his living.

And now to summarize our consideration of these five movements which are today each one having a telling effect on labor turn-over percentages, may we not truthfully say we are fast approaching a much-to-be-desired improved industrial day with all responsibilities where they belong, not only because of honest conviction that it is just and proper, but because it is based on sound economic condition in business?

If there ever was truth in the statements that business and industry are heartless and without soul, are not those who are conscientiously promoting these various activities putting a heart and even a soul into it? Let us glory in the work.

If all the developments mentioned in the foregoing are accurately described, and if their success has been effectually demonstrated, one might well inquire what remains to be done? What progress will industrial history record during the next ten years?

First, let me suggest that while all the various movements mentioned have each had sufficient trials to prove their worth and to establish them so firmly in the industry that their permanency cannot be questioned, not any one can be yet considered as universally adopted. There is a large field still to be covered. Nor can we say truthfully that all employers have adopted even one of these measures in an attempt to prevent excessive labor turn-over.

There are in proportion but a very few employers who have adopted all of these recommendations and accepted the responsibilities which go with them.

Progress during the next ten years will demand education by each group and by all groups on even a more aggressive program than in the past. Competition will give effectual assistance in this respect.

Successful education will require something more which I look for in the next ten-year period. This is the standardization of those methods and principles underlying them, which are to be used in the study and execution of these various processes to be most effectual.

Each one of these movements is so comparatively new that there is very little agreement as to how they can each one be best worked out under all conditions. In fact, not enough consideration has been given this fea-

ture, probably because of the fact that it has taken up so much time to work out the individual case that no time was left for standardization.

However, we know that the time for this work has arrived and it is already receiving considerable attention, as is proven by the existence of this organization, the Western Efficiency Society and other similar organizations, the National Safety Council, the National Corporation School Association, etc.

This will probably do more than any other one thing to influence the universal adoption of these propagandas. It is hardly logical that employers will wholly and fully accept these principles until those who advocate them are themselves agreed to definite laws and statements of object as well as more or less standardized methods of applying these laws and attaining the results desired.

Then, too, I believe there is a great need of co-ordination of all the work of all five of the groups discussed.

To my mind several things are evident in this connection. They all have a common interest, the industrial worker and his progress.

They obtain at least one common result, the reduction of excessive labor turn-over as here discussed.

They must overlap in their work, and certainly much duplication has occurred requiring time which could be put to better use in further development of one or the other.

Facts developed by one group simplify the work of others.

Most satisfactory industrial conditions and lowest possible labor turn-over percentages cannot exist until, as far as practical and possible, all these features have been considered. No one is wholly effectual and it would be difficult to say that one of these movements is more important than all of the others. These are my arguments in favor of co-ordination and co-operation among these five groups of propagandists.

Summarizing them, if not my prophecy, at least my hope is that labor turn-over will be reduced, if not to a theoretical minimum, at least to a practical one, because:

1. The great majority of employers will have been influenced to recognize the study of the industrial worker as a problem and a responsibility which has to do with another problem in which he will learn to be interested—labor turn-over.

2. The sponsors of those various movements which are even now so successfully studying and solving this problem, will have standardized their own principles, laws and methods, and will offer the employer a definite program to follow in his study and solution of this problem. This in itself will have much to do with convincing the skeptical. Competition—seeing the other fellow work it out successfully,—will also do its share.

3. The five groups now so actively engaged in this all-important work will join forces, in some organized way will co-operate and will be co-ordinated, realizing their common interests and common object. They will do this, realizing that where one is, all the others must be, in a lesser or a larger degree, depending upon possibility of practical application.

These in their broadest aspects are my sincere hopes for the common

interests of the industrial worker and his employer during the years next to come.

The present national crisis, when all of our labor resources must be mobilized and conserved, will, I believe, bring these conditions many years nearer and will force upon employers a national appreciation of their necessity.

The meeting is adjourned.

FIFTH SESSION

Thursday Evening, May 24, 1917.

Mr Irving A. Berndt, Chairman.

MR. BERNDT: Ladies and Gentlemen—We are at this conference considering a very important problem, that of the human factor in industrial preparedness. This would be no real conference if we did not consider at at least one of our meetings, and more if we have time, labor's viewpoint. We ought, if we are to make this the real consideration, have a complete discussion on the subject. Tonight we are devoting the entire time to that one subject and the speaker we have chosen to present the matter to us is the man who is best fitted to present Labor's Viewpoint; a man who is respected by every factor in industry today and whose views we all look up to, Mr. John P. Frey. Mr. Frey, who is the editor of the International Union Molders' Journal, is a man whom we are glad to have with us tonight. He has the confidence of organized labor of the United States, as indicated in the fact that he is a member of the executive committee of the American Federation of Labor; he has had the confidence of the United States Government from the fact that he was a co-worker with Professor Hoxie on the Industrial Labor Committee which was appointed by the Government; he has the confidence of those who are here tonight representing the scientific management of large industrial concerns, and I take extreme pleasure and think it is a distinct privilege that I have in presenting Mr. John P. Frey. (Applause.)

MR. FREY: Ladies and Gentlemen and Members of the Western Efficiency Society: Before I begin I want to make a confession: I am going to inflict a paper on you this evening instead of having the privilege of getting that encouragement and that inspiration that would come from watching your countenances as I would addressing you. That is one thing that I will lose. I think, however, I may be a gainer in this, that having to read my paper and watch the words I will not be able to discover a period in my address when you are all becoming so fatigued that you are wishing for me to bring it to a hurried close, so there might be advantages after all in reading. My principal purpose in preparing the thoughts that I wanted to bring to your mind and presenting such facts as I had at my disposal was to lose as little time as possible in getting before the meeting that which I desire to present.

I was very much interested in one of the things which the Chairman just said, namely, that it was well that labor should be here in connection with this question of production. This country now faces an entirely dif-



JOHN P. FREY

ferent problem than it has ever faced before. It is beginning to take up the problem that has been the most serious one for all of the European countries to solve, the problem of production, the problem of what labor will do in the maintenance of our armies. We have found that the labor problem is as important as the military problem and it was not until much blundering and much loss of valuable time that certain fundamental truths were discovered. I hope in the course of the evening to call some of those truths to your attention. The problem of the human factor in industrial preparedness is one of the most vital to the nation's welfare which can be considered at this time.

LABOR AND INDUSTRIAL PREPAREDNESS.

By John P. Frey.

The problem of the human factor in industrial preparedness is one of the most vital to the nation's welfare which can be considered at this time.

A few years ago the wooden man-of-war was equipped with bronze or cast-iron cannon, smooth bore and firing round balls. The sailors were armed with pikes, cutlasses and pistols. Today the steel battleship is a massive floating machine shop and fortress. Its armament required an army of mechanics to produce, the firing of a single broadside has required greater industrial production than was entailed a few years ago for the arming and munitioning of a fleet.

The soldiers in our earlier wars carried their cartridge factory with them in the lead bar, bullet mold, and powder horn. The modern high-powered rifle and machine gun has introduced entirely new demands, requiring greatly increased production.

Field artillery has been revolutionized, huge transportation facilities are now required to munition an army in the field. Today, the army must be carried upon the shoulders of a vast number of industrial workers.

The European war has given a tremendous emphasis to the fact that the structure of military preparedness under modern methods of warfare rests largely upon a foundation of industrial preparedness. Unless there is industrial efficiency first, modern military efficiency cannot be developed. The industrial workers' capacity for production and their co-operation with the forces upon the battle-field have become the factor which very largely determines an army's effectiveness. Munitions have become as important as soldiers, and the production of these munitions today requires the service of an enormous army of skilled and willing industrial workers.

There are three major problems to be solved, if the workers are to contribute the largest degree of assistance to the nation's defense. These are the maintenance of the workers' physical and nervous strength, the development of their skill as craftsmen and industrial workers, and the establishing of those conditions which will enable them to co-operate most effectively with each other and with their employers.

One of the first steps taken with the military recruits is to strengthen

them physically. Wholesome food in necessary quantities is supplied, sufficient exercise to harden their body is provided, and compulsory rest from "lights out" in the evening to "reveille" in the morning is maintained, so that the recruits may be brought up to the highest degree of physical efficiency. It is recognized that insufficient food, over-exertion, or insufficient rest, would unfit the soldiers for the physical exertions which they must be called upon to perform in the course of their duties.

Enlistment in our army and navy will draw heavily upon the mass of our industrial workers, so that those who remain will be called upon to produce in larger quantities than before.

If this additional production is to be secured, is it not apparent that these industrial workers must have their bodies so nourished, protected from physical or nervous overstrain, and given sufficient rest, that they may be physically fit to perform their tasks?

The scientific investigations which have been made in this country and abroad have amply indicated that the workers' physical and mental efficiency is based primarily upon the quality and quantity of their food, the degree of physical and nervous strain entailed by the character of their labor, the sanitary conditions surrounding their place of employment, and the comfort and opportunities for rest provided by their homes.

Fortunately we now have at our disposal the most valuable data concerning the question of the workers' efficiency during war time which has been prepared.

For reasons, which it is unnecessary to analyze at this time, the industrial managers of Great Britain entered into the production of war munitions without the ordinary regulations of factory legislation or trade-union rules. The hours of labor were lengthened, in many establishments Sunday work became the rule. Wages did not keep pace with the rapid increase of the cost of the necessities of life, so that a condition of undernourishment existed in more than one locality.

The lofty appeal of patriotism was the stimulus applied to secure the worker's consent to work long hours at high speed. But it was not long before it became apparent that all was not well in the industries. Not only were the workers manifesting a rebellious spirit against the industrial conditions which were being forced upon them, resulting in a reduction in the spirit of co-operation on their part, but it was becoming evident that their physical standards were being jeopardized, to the injury of industry itself as well as the workers' physical well-being.

So serious did the problem become, that a Health of Munition Workers Committee was appointed by the Minister of Munitions in the middle of September, 1915, whose duty it was to consider and advise on questions of industrial fatigue, hours of labor and other matters affecting the personal health and physical efficiency of the workers in munition factories and workshops. Since that date this committee has published fifteen memoranda dealing with one or more of the subjects which had been entrusted to it.

These reports contain information of a vital character which we must study and apply if we are to avoid the serious and almost fatal mistakes which occurred in British industries since the European war began.

In summarizing upon industrial fatigue and its causes (Memorandum No. 7) their report reads in part:

"The committee are bound to record their impression that the munition workers in general have been allowed to reach a state of reduced efficiency and lowered health which might have been avoided without reduction of output by attention to the details of daily and weekly rests."

It was found that lengthening the hours of labor had resulted in reduced efficiency caused by muscular and nervous exhaustion. Briefly, the objections to overtime were found to be that:

1. It is liable to impose too severe a strain on the workers. Many witnesses assert that while for an emergency, overtime is effective, after a period the rate of production tends to decrease and the extra hours to produce little or no additional output. Moreover the quality of the output may be adversely affected during the whole period of work and not only during the hours of overtime.

2. It frequently results in a large amount of lost time. In part, this is to be attributed to the workers becoming exhausted and taking a rest, and also to sickness, noticeable chiefly among the older men and those of weak constitutions.

3. It imposes a very serious strain upon the management, the executive staff, and the foreman, both on account of the actual length of the hours worked and the increased work and anxiety to maintain output and quality of work. These men cannot take days off duty like the ordinary workers.

4. It is liable to curtail unduly the period of rest and sleep available for those who have to travel long distances to and from their work, a matter of special importance in the case of young persons.

5. The fatigue entailed increases the temptation to men to the consumption of alcohol. They are too tired to eat and seek a stimulant.

The question of output in relation to hours of labor was made a subject of careful scientific investigation, with the result that the committee found that the total output increased as the hours of labor were reduced.

In the case of one hundred women engaged on moderately heavy labor, it was found that, where the actual hours of work per week for a period of seven weeks averaged 68.2, the relative output per working hour was 100, while during a period of ten weeks with an average of hours of work of 59.7 per week the relative output per working hour was 123.

Commenting upon this table, the committee's report says:

"The total output is 7,343 per week, or 8 per cent more than in the pre-Christmas period; in spite of the hours of labor being nominally 10.5 less, and actually 8.5 less."

In a case of milling screw threads—labor of light character—it was found that the relative average hourly output of 100 for a week of 67.4 hours rose to a relative average hourly output of 112 for a week of 59.8 hours. In the instance of men employed in heavy labor, the sizing of fuse bodies, the relative hourly output of 100 for a 61.5-hour week was increased to a relative output of 124 for a 56.2-hour week.

It was found that the excessive hours of labor had resulted in greatly

increasing the amount of time lost to recuperate and in sickness, and had also caused a staleness of the workers. By experienced managers and medical officers, this condition of staleness is attributed almost wholly to the long hours and the deprivation of a weekly day of rest.

Upon the question of industrial fatigue, the report says in part:

"In the rapid enlargement and organization of munition factories in this country there has been, and is, the most urgent need for the application of the results of experience skillfully acquired. Upon a sudden national emergency the accumulation of fatigue and its results in workers might well be temporarily disregarded, but now, though the special need persists, the race is to be a long one, and a failure to conserve a maximum efficiency of the workers must be disadvantageous. Misguided efforts to stimulate workers to feverish activity in the supposed interests of the country are likely to be as damaging to the desired result as the cheers of partisans would be if they encouraged a long-distance runner to a futile sprint early in his race."

In discussing the hours of labor and the question of fatigue, many, unfamiliar with modern methods of production, refer to the period when the manual worker labored from sunrise to sunset for a standard.

To compare hours of labor under the old-fashioned hand method of production, or during the period when cumbersome and slow-moving machinery was being introduced, with conditions as they exist today in industry, is as inappropriate and as misleading as a comparison between the highways used by our forefathers and those required today to sustain the wear and tear of modern vehicles upon the road-bed.

The muscular and nervous strain upon the worker in the modern manufacturing plant is much greater than under previous periods. The monotonous character of some of the work, the high speed of machinery, the burden placed upon each individual worker to maintain his share of the output so that a steady volume of gang production can be maintained, all tend to place a strain upon the worker which is more exhausting to his vitality than previous methods of production. There was a time when the worker largely regulated the speed of the machine. Today, the machine is largely used to regulate the worker's speed.

The old-fashioned idea that long hours of labor are productive of increased output must be set aside. The belief that long hours of labor increases the output has been shattered not only by the scientific investigator, but by the experience of the industrial establishments where the hours of labor have been shortened, the unfortunate fact being that in most instances a reduction in the hours of labor has come more as a result of labor's refusal to work longer hours, than from the enlightened knowledge of the employer upon the subject of hours of labor and production.

The scientific data at our disposal, secured during peace times and since the subject has been studied in Great Britain during the war, indicates that the lengthening of the hours of labor created physical staleness among the workers, increased the amount of time lost for recuperation and through sickness, detrimentally affected the quality of the work, increased the amount of inspection required, and failed to secure the maximum production for a long period of time.

Unquestionably the worker's craft knowledge, his skill as a mechanic, his manual dexterity, plays an important part in production.

The theory has been held by some industrial directors that the craft knowledge formerly so necessary to production is no longer essential under modern methods of industry. They have nourished the belief that the part taken by machinery, the ability to specialize and subdivide the work presented by modern industrial plants, is such as to enable a small group of trained men to educate and direct practically unskilled labor, to such an extent that the old-fashioned craftsman is no longer required. This tendency to specialize as been one of the major causes which has led to the abandonment of apprenticeship upon a large scale, another cause being the employers' disinclination to be bothered with the education of apprentices and his belief that it was cheaper to secure his skilled workers from other manufacturers.

It is a well-known fact that apprenticeship in the trades is becoming more and more a lost practice, and furthermore, where the term is still used the actual condition of the beginner is frequently not that of an apprentice in the old-fashioned sense of the term, but in many instances a young person, or an adult, who, under the impression that a trade is being taught to them, are employed upon simpler parts of the work during the period of so-called apprenticeship. As their output on this class of work is as large as the journeyman's and their wages considerably less, they are considered more profitable than journeymen would be.

If the workers of our country are to produce efficiently during the war period it will be necessary to adopt every possible method to increase their craft knowledge and manual skill.

Permit me to say in this connection that the technical skill of the efficiency expert and the overseer and the marvelous mechanical perfection of the machine cannot of themselves replace the worker's brain and render his craft knowledge unnecessary to efficient production.

The workers are influenced by two forms of government: The first, the government by law which is established through the civil machinery of democracy, and the other, government in industry which largely establishes the relationship of employer and employee, and the conditions under which the workers' labor is to be given in exchange for the wages they receive. This form of government at the present time is sometimes absolute and autocratic or partially mutual and democratic.

Our form of government as citizens is democratic. Our relationship as citizens is determined through the application of the principles of democracy. We live under democratically enacted laws, democratically administered. All of the glorious traditions of our country would inspire us to resist the reintroduction of the arbitrary and autocratic form. But in our industries the control is largely autocratic or absolute, except where the workers are organized and where through conferences with their employers they have entered into trade agreements; that is to say, where laws or rules governing the industry and affecting employer and employee alike have been entered into through the democratic methods of joint conference and collective agreements.

Because of a lack of democracy in the government which so largely regulates industry, there is suspicion, antagonism and conflict.

Industry is frequently spoken of as a partnership between capital and labor, but if capital is to make all of the rules and labor accept them without question, the quality of partnership created is not calculated to bring satisfactory results to a majority of the partners.

Where the employee is not consulted, where he is not allowed to have a voice in the determination of the conditions of labor and the terms of employment, where he is expected to accept the dictum of a general manager or superintendent, is it surprising that this condition appeals to him as a practical application of the cats making laws for the mice?

Autocracy or absolutism in the direction of industry cannot develop any better co-operation between the manager and employees than the same element in government can develop loyalty and co-operation between the autocrat and his helpless, voiceless subjects.

The argument has been advanced by some serious thinkers and students of the problem, that if the workers were to be given a voice in determining the conditions under which they are to be employed and the terms of their employment, successful industry would be impossible because, however well-meaning, the workers are not sufficiently well-informed upon the problems affecting industry to safely permit of their participation in the determination of shop rules and regulations.

The substance of this argument has been the one advanced by all of those defending the autocratic form of government. It has been the stock argument of those who have contended that the mass of people are not qualified to govern themselves but must be governed by the few who were born into this world for that purpose.

There is a method which has been applied in the effort to establish a larger measure of justice and better co-operation in the industry. A few have believed that in arbitration the most advantageous medium for adjusting the relationship of employer and employee has been secured, but experience does not bear out this expectation. Boards of Arbitration, whether purely voluntary, or partly or wholly compulsory, invariably acquire the court room atmosphere with the lawyer and the expert playing the same part which they do in the court room.

The law may prevent neighbors from doing unlawful injury to each other's property, or from throwing bricks at each other, but it cannot make two neighbors treat each other with courtesy, decency and a fair regard for their mutual rights, neither can arbitration accomplish this, any more than arbitration could settle a dispute between autocrats and democrats in a country where the authority of the one was a challenge to the other.

The attempt to adjust industrial disputes through compulsory methods of arbitration has been given a thorough trial in Australia. This machinery for the adjustment of industrial problems had shown fatal weakness before the war. Since then the inherent fallacy upon which the system was founded has been made still more evident.

In Europe, and in this country, we have witnessed the inconsistent attitude assumed by employers who organize themselves into associations with

the object of preventing the enjoyment of a similar right on the part of their employees. They apparently believe that their own welfare depends upon maintaining autocratic direction over labor. They have failed to learn the lesson that intelligent human beings, regardless of the place they occupy in industry or in society, only submit to autocratic control so long as they are unable to escape from a condition which they believe unsound in theory, unjust in practice and detrimental to the best interests of all. This attitude is not peculiar to any one industry or country; it is encountered almost everywhere.

The present national crisis calls for the most effective co-operation between the employer and the employee. The co-operation cannot be satisfactory if the conditions upon which it is based is the former one expressed by the term "master and servant." If there is to be co-operation there must be mutual consideration of the other's rights, a basis of understanding must be reached as a result of joint conferences, for co-operation cannot be created through the enforcement of arbitrary decisions, any more than the horse led to the water can be forced to drink.

The nation is in urgent need at the present time of a constructive industrial program. No one man, or group, is sufficiently well-informed, or wise enough, to be clothed with full authority to determine the multitudinous questions which arise between employer and employee. It would seem in the light of experience that these questions can only be adequately adjusted through mutual discussion and agreement by the parties directly affected.

THE CHAIRMAN: I am sure we all appreciate how fortunate we are in having Mr. Frey give us his version on labor's viewpoint, as he has presented it to us tonight. In discussing this we invite visitors and members to join in the discussion and we particularly invite representatives of labor. The meeting is now open for discussion. Mr. Frey, I know, would be glad to answer questions.

MR. HARRINGTON EMERSON: I agree so thoroughly fundamentally with the aims and ideas that Mr. Frey has presented to us that I hesitate to utter any word or add any remarks. It was formerly my own conviction that if the hours of labor were shortened the output would not be reduced. That is a belief that I was anxious to hold and I sought all possible confirmation of that belief, and I do not hold it today on account of the number of demonstrations that have been given to me proving the contrary. I therefore have abandoned entirely the advocacy of shorter hours on the ground that you can produce more in a shorter time than you can in a longer time, but I have preferred to take the higher ground that the man is not the mere beast of burden, not a machine that should be driven to the utmost of his capacity, irrespective of his welfare and of his position as a citizen. I take the ground that the reason we should advocate shorter hours—and I don't care personally how short they are made. In my own work I have always wished to leave the question of what we might call bonus to the men, to be taken either in the form of shorter hours, if he so elected, or of more money for the same day. I have advocated the question of shorter hours on the ground that we owed it to the man as a citizen and as the head of a family and that that was the strongest possible ground we

could take for shorter hours, and not from the fact that we think you can produce more if you work longer in the day rather than shorter. (Applause.)

MR. HODGSON JOLLY: Mr. Chairman: I would like to ask Mr. Frey if the so-called failure of the arbitration question is not more or less attributive to the fact that Australia and New Zealand are the hot-beds of socialistic doctrine and not to the fact that there is anything wrong with the plan itself. I think that everyone agrees who knows economic conditions that Australia is the sole center of the socialistic movement outside of Germany.

MR. FREY: I can only give my opinion, and that is the principle of arbitration is unsatisfactory and incompetent to solve most of the problems that arise. Occasionally it may act as a palliative, and that is all. The principle, I think, is unsound for this reason: When men allow outside authority to determine certain percentage or all of the matters in a joint bargain there is first of all the effort to use that Board of Arbitration to get the kind of award that you want, and both parties, if they have any skill in organization, endeavor first of all to have the board shape itself in their favor before arbitration begins. When an award is handed down those who feel that they did not receive all they were entitled to accept the award grudgingly, carry it out only so far as they are forced to and seek the first opportunity of overthrowing those portions of the award which are unsatisfactory to them, and for these reasons I think that the principle is unsound; that the sound principle to apply is that of genuine bargaining. Let's say that you own a horse and you think the horse is worth \$200; you want to sell it, I want to buy it; I think the horse is not worth over \$50. We will submit the question as to the value of that horse to some one who may be selected to set the price. The probabilities are that neither of us will be satisfied in the trade or in the price that is paid, but if we sit down together and finally agree upon a price ourselves then we both accept it, accept what we have agreed to, with an entirely different attitude towards each other in the bargain than as though outside authority had definitely said thus and so you must do. My own opinion is that the only value of arbitration, whether it is voluntary or compulsory, is to serve as a palliative, and I have had twenty years or more of practical experience in dealing with employers and workers.

MR. J. S. BROWN: Is not most all of our trouble due to the fact that the manufactured article in a certain part of the country costs less than in another, the labor, or rather the price of labor, is less or more than in other sections of the country and the employer meeting the competition with the person who has his article manufactured for less money than he is at a disadvantage in seeking the business on this particular article. Now, in an area like the United States, I speak from my standpoint, being in the tobacco and cigar business—cigars are made in certain sections at a less price than in other sections, and if that could be organized in some way it would be in the interest of the cigar maker. I don't know whether it would hold good in other lines, but I imagine it would, and that our great trouble lies in the fact that the employer getting into competition is injured for that reason. Something ought to be done in that direction.

MR. FREY: I can only say on that matter, that contrary to what

would seem to be the facts in the case, my own observation have convinced me that the rate of wages paid and the hours of labor are the least instead of the greatest factors in the cost of production.

MR. BROWN: This is piece work.

MR. FREY: Well, even in piece work it is your overhead charges more than anything else. In the cigar business that may not be true, but in the industries that I am familiar with, the question of management and the overhead charges are far more important factors than the wages paid and the hours of labor. Take for instance two manufacturers paying the union scale of wage under the same business working conditions: one goes to the wall and the other declares a dividend of 27 per cent.

MR. A. RUSSELL BOND: I would just like to speak a few minutes and give a little illustration which I think is pertinent and bearing on this very point. The other night it was my pleasure to speak to a body of manufacturers, most of them small manufacturers, some from Chicago and some from other towns around the states, and afterwards I was talking to one of the members. He said, "You know, it's a funny thing in doing business in Chicago where we have the strongest union to contend with; have to pay the highest scale of wages, highest overcharges; whenever we get into competition with fellows down the State, we can always beat them out in spite of the fact they work longer hours and pay lower wages." I have found out that the fact as stated by Mr. Frey—the manufacturers are too prone to think what the laborer gets in his envelope is the whole thing and I think one of the reasons for the long hours you find in some industries is the fact that the manufacturer is leaving too much to the time service department. In one factory with which I was connected for a time, in the course of some six years they went through a school of operation. The overhead charges of it were very heavy and I had the pleasure of seeing them work from two twelve-hour shifts down to four six-hour shifts, and from an output of twelve in twenty-four hours of the particular article to four an hour, or twenty-four in each six-hour shift, ninety-six in the day, and wages in the meantime went up from about \$40 for two weeks' period to nearly \$100, and it was a pride and a joy to see these men, the effect that it had on them. You would run across one of those furnace painters down town after work. They would get out of work before I would and I would often find them standing on the street down town dressed up like bankers. It made a big difference to them, all the difference in the world. They had clean clothes on, went home and had plenty of time to spend with their families and in recreation. I have had experience in athletics which brought out what Mr. Frey said tonight. One summer I took a long walk, I took this long walk under certain fixed conditions that we were to accomplish so much, try to make a record, in other words. We might have done two things: started out to see how far we could go the first day and break down in a short time; we might have given up to our feelings and walked until we got tired and went back home. Some of the party did those things, but two or three of us would measure our pace and rest. Two or three of us stuck through to the end. My pal gained ten pounds in weight on the trip and I gained six, and we averaged thirty-seven miles a day. We were pretty

wabbly on the third day, but from that time we began to get stronger. We set our pace four miles an hour. We had a little thing on our hip by which we checked up on the time. Sometimes when we stopped to rest up we would take a jump into the Erie Canal, sit around, maybe had something to eat, maybe rest an hour or eight hours or a day, twelve hours some days, but eight hours at least, and we averaged four miles an hour, and I think if the manufacturer would analyze this question in this same manner, working it maybe six hours, eight hours or ten hours, bearing in mind, as Mr. Emerson has pointed out, what is the human side, it would work out in the same manner. It pleased me very much when Mr. Henry Ford announced they were going to abandon the third shift, practically developing his plan so he could work on a two-shift basis instead of three. By checking up from the human side, it shows to the men what isn't good for them. Just one word in regard to autocracy and democracy. I feel rather keenly on that question, feel rather surprised and gratified to know that it bears out a certain theory I have that those who are most stirred up by the autocracy question that has brought about this great war are those who are the worst practicers of it in this case.

We may question autocracy, but as to the rights between capital and labor I would consider no price too much; let us not forget we have a little Germany in our own country. (Applause.)

MR. W. ADAMS: I would like to ask Mr. Frey a question: I would like to know if at any time capital and labor have ever gotten together and decided mutually what part capital should get and what part labor should get. I don't know whether it is possible to decide that, but it seems to me until that is decided it will not be possible for labor and capital to come to an agreement.

MR. FREY: I know instances where that was agreed on.

MR. D. S. ULLRICK: Mr. Chairman: I was very much pleased to see that Mr. Frey put the emphasis on the human factor and that he attached what seems to me to be a fundamental fact, of human labor in dealing with this problem. I am frank to say that I have not before thought of arbitration in the same light in which Mr. Frey presented it. The recent developments in industry have pointed us to this particular fact: that all industry is purchase and sale, a fact Mr. Frey brought out. The problem is the problem of bargaining, but in salesmanship we have come to a new viewpoint. No longer are we expected, as a rule, to go to the trade and put over something on the other fellow. Salesmanship has come to be a profession, because we have realized that the salesman performs professional service, carrying a larger knowledge of the particular thing he has to offer to the buyer in the spirit of service and co-operation. Now, it seems to me, that exactly that thing is going to be the outcome of the viewpoint which Mr. Frey is presenting here tonight if we can carry the propaganda of it to both sides. Examine the thing from the standpoint of the human side: we know that psychologically when you get one idea set up in the mind, if you undertake to argue, you must set up an oppositional idea, and then there is a fight on between the two ideas, and that is represented in all of us. We have all experienced what the determination to win on the side that

we set up means. We have found, drawing again from the experience of salesmanship, that it is the poorest kind of policy to get the customer into we set up means. We have found, drawing again from the experience of salesmanship, that it is the poorest kind of policy to get the customer into an argument. Now, the Board of Arbitration presents just that feeling. Here is one side and here is another and it seems to me that we are indeed fortunate tonight in having this presented in so clear a form and so concisely and so fully and I am glad to have this viewpoint and to go out with the viewpoint that the thing we need to do is to adopt the idea of composite bargaining. I really don't like that idea bargaining because that goes clear back to the time in the early history of merchandising when the seller would put his price high and the buyer would put his very low and then they would get together on the basis that suggested, but I think we are coming to a saner view of it now, undoubtedly that view of the case in which we will learn that autocracy on the part of the buyer or the seller will not be tolerated and we will find mutuality the key word of efficiency, efficient development of the human element in the future. People must remember that the human element is the element with which we are dealing in all these factors and not the thing which we looked upon for material production, machinery and all these things as the vital thing in industry. This subject and its treatment here tonight has put the emphasis exactly where it belongs on which you and I and the other fellow think and feel, and when we think right we will feel right and when think and feel right we will live together peacefully. .

THE CHAIR: In addition to the speakers we have already heard we have with us tonight one man whose ideas on this subject will not only be interesting but also instructive. I speak of Mr. Barth. I am going to ask Mr. Barth if he will say a few words this evening.

MR. CARL G. BARTH: Ladies and Gentlemen: I don't just feel as well as I should like to, sometimes I feel like talking and other times I don't. I don't feel particularly like talking tonight because I went down to Cincinnati the other day and I talked too much. They called me the human phonograph, never run down (laughter) and put my name alongside of it, but it's very hard for me to keep quiet. I have got a few things here of interest that I can bring up. I will ask Mr. Frey some questions. As regards the question of length of day of course its the same big question; its the same story. We often find that people quarrel about things in a general way. There are a thousand different specific examples. A draftsman has his proper length of day, hours of work; a clerk has his specific length of day; a laborer, and so on, and also finally coming down to what Mr. Emerson says that man is not always a beast of burden. However, that may be I have never found that I am anything else (laughter) but I have had an awful lot of fun as a beast of burden (laughter). The other fellows don't have the fun I have, but it is with them like everyone else who is making too much money. There must be a certain number of hours in which any normal man will produce the most, because if he starts in in the morning to work like the devil he might be dead in half an hour and that isn't the way to get the most out of it. That's what we have the

black board for, I suppose, that we can make some figures on that, something along the same line. The first question asked is just what pressure a man should work under. Experiments have been made along that line and it has been found out pretty well the proper length of hours ordinarily and what pressure appertaining to that will produce the most work inside of ten hours (drawing diagram on blackboard). That which is done by the human body is as that done by steam engine—that is, a certain maximum load, a certain length of day. So in any one kind of work we must have this condition and most any day can be reduced to mathematics. So here it is if we start out to work entirely too long hours we become inefficient, like a man worked too long hours and then falls asleep. They try to find the end of the day so they can have some fun, look at pictures, or make pictures if you have an inclination for that, but whether it should be 8 hours or 6 hours or 7, I don't know, but if I am not wrong I am predicting that the time cannot be far off before a man will be able to support himself and a family. Hours play an important part in the matter but it is also a matter of human desires. Just as soon as the neighbor gets a little better something than I have, "My God, I've got to have more money" (laughter). Then when I get a little more money I've got to have a \$200 Victrola or a Player Piano, he's got to have that too, so if you have got to have the entire world you have to keep on working long hours. Now, I have got to that point myself. I have everything I want (laughter) and still, somebody insists upon giving me something for Christmas. Now, in regard to working long or short hours, a concern I worked for had figured this out so the draftsman worked ten hours a day in the shop, they had it reduced to 9 hours just before I started in there, so I started in at eight o'clock and quit at six, but there was one man there, a man very well known, an engineer in St. Louis, he tried to sell, he spoiled a good engineer and made a poor salesman. He was a rich man's son and he used to come in late. The Company in Philadelphia sent for him and they said, "Fred, I don't like this thing here, your record for tardyness this year has been pretty bad." "Well," Fred said, "yes, I don't feel like going to work in the morning at 8 o'clock and quitting at 6. I feel that I can be doing more work for you by working when I feel like it than by coming in on time." They said, "Fred, do you really mean that?" He said, "Yes, I believe everyone could do more work for you." They said, "All right, we will try it," but before they gave it a trial Mr. Sellers sent for me and he said, "Barth, so and so said something, what do you think of it? I know pretty well you can't do as much work in 8 hours as 9." "Why?" I said. He said, "Because you work every single minute of the day." That was his personal opinion of me and I will say I worked like the devil, because I was interested in everything I did. I said, "I would like to get off at 5 o'clock and go home, because I could get at my mathematical studies that much quicker. If I have that extra hour off I can accomplish just that much more in mathematics." So you see what I have accomplished in this line has been due to that hour off, it isn't much, but you all know I have done some work in the mathematical field, in fact it hardly paid for that hour. Then the hard times came along and some people didn't even get 8 hours a

day, some only got 4 hours a week, then they picked up again and they got busy. Then in spite of that fact they had reduced the hours in the drafting room and they had more work we turned out better work than ever before. But men that would like to work long hours weren't sent home and a great many women worked overtime and there was a sneaking idea the more a man worked the more he turned out. At one time I hoped to live to see the day at 6 hours myself, I really did, because I didn't think we were going to have all these victrolas and self playing pianos, but if they want them they better keep working. It is certainly true that the greatest benefactors to mankind did not work on a 6 hour day; they worked all the time, but they are exceptional men and able to stand up to it and they don't get indigestion (laughter). I want to ask Mr. Frey some more questions and maybe he will answer them.

What do you want us to bargain, now, what is it you want us to bargain about? Just tell me one thing you want to bargain about really (laughter). Now, every man that comes to the shop seems to me bargains. He is told how many hours he works, how much pay he gets. He asks so much, we either turn him down or bargain with him and so you know, it is mere bargaining as it is. They want all kinds of up to date surroundings, toilet facilities, ask what toilet facilities you have, how many lights do you have, how is this, how is that (laughter). Now, all of these things I work for as hard as I can and endeavor to have them the best we can and the best we thing a man ought to have, but I can't do anything that produces more money for the company. What it is you want us to bargain? You know I am anxious to bargain.

MR. FREY: Mr. Barth has opened up quite a field and Mr. Emerson also. I was particularly careful in referring to fatigue as a result of long hours of labor. I refer to this one condition because the problem is being considered in this country as to increasing the hours of labor. In Great Britain it is being followed by reduced vitality, reduced efficiency, reduced production. I particularly used just that one subject, fearing the cry in this country will go up, let's have long hours of labor. Those who have studied the question have reached the conclusion that nobody can tell just what are the hours for anyone craft or industry. I don't profess to know it myself. I don't; nobody does. Those of you who are engineers, when you are calculating upon a structure built up on steel you have to start with the breaking point of that steel, about 65,000 pounds to the square inch, but that breaking point of steel isn't the important thing for you to consider, because when you have applied a testing load to that machine, 30,000, 35,000 pounds to the square inch, you put a little more test on that steel, you have passed the elastic limit and the steel will never then return to its former shape, and then your engineer who is building gets the elasticity point in mind and never allows the load of more than that which reaches that point, upon the structure. Now, this is steel. As you go into the baser metals the elasticity limit is reached much sooner than the breaking point and we as human beings—our vitality is very much the same as the elastic limit and that breaking point. When the breaking point comes after the elastic limit has been passed, it generally comes forever. I may stand

much more of that strain than anybody else, but when it comes after hours of labor, the wear and tear of the physical being, you have much the same thing that the mechanical engineer has in the building. I am not trying to make an 8 day argument, I was merely calling attention to conditions in Great Britain where, by increasing the hours of labor they have consequently reduced the efficiency of the workers.

Now, Mr. Barth wants to know what we want to bargain about. My only reply is this: We want to bargain upon every element, any relationship between employer and employe that effects us as employes. Is that conclusive enough?

MR. BARTH: Yes, that means absolutely nothing.

MR. FREY: Yes, the hours of labor to be specific, the wages to be paid, the form in which those wages are to be paid, whether it shall be day work or piece work and all of the rules and regulations that effect us as employes, and that determine our relationship as employe or employer. In other words, to have the form of democracy applied in the same manner as nearly as possible, with the same intention that we apply democracy to our government. I know of no question affecting the relationship between employer and employe that would not be settled by agreement between the parties. I am strongly opposed to arbitration, autocracy on the part of the employer or employe.

MR. BARTH: I am very pessimistic myself. I hope for everybody's good. I hope there wont be any difficulty but how are you going to bargain in a concern that employes 10,000 men. The ideal man is the one who does the best for the work no matter what he is being paid. I will say for myself I always tried to do that. I never in my life thought about the pay envelope when I did my work and the only time I thought about it was when I thought about all the things I had to buy with it when pay day came around (laughter), so I don't see how we can bargain. I think I would leave it to the employers to do the right thing as best they saw it. I am as a little Rockefeller with my money. I hate money (laughter). Now, then, what are you going to do about it, Mr. Frey? (laughter).

MR. FREY: My ideas are when the employes are in the wrong if they would sit down and talk things over the wrong would be corrected. My experience has been that the average man is very fair, regardless of the position he occupies. My friend Barth did something a while ago that I don't consider quite fair. He referred to the fact that I took a very active part in perfecting the system that has been installed in the Watertown and other arsenals. He would leave the opinion that it was the system itself. I wouldn't want to pass any opinion on the system, but in as much as the question has come up the reasons that I base my contentions on the conditions that existed there were because I found out that those in authority in the name of science committed blunders that were almost unbelievable and that never could exist in a plant where intelligent production can be carried on. I made an inspection with Mr. Hoxie and Mr. Valentine and we discovered that a standard of 8 hours and a fraction had been set a job, whereas in reality it required over 40 hours to perform the job accurately. That was one little mistake, a difference of between less than 9

hours and 40 hours. I found on another job where the amount of work had been practically doubled and the time reduced. I found many of those errors had been purely the result of miscalculation of the time and partly the result of mishandling of information that had been gathered and placed on record in the routing department. One of the most interesting exhibits of incompetency in the name of science was that of the man in charge of the foundry, an officer of the foundry, who after I had called off some 18 or 20 jobs that I had been told mistakes in the setting of time had been made in admitted that errors had occurred. To prove that he had not been doing so intentionally re requested us to examine an exhibit that he brought out to show his heart was in the right place and he took up twice as many jobs which we had failed to get, on which he had set a longer time than necessary. It was because that incompetency existed in the United States arsenals that I was opposed to permitting that to exist. (Applause.)

MR. BARTH: I worked for seven years for Uncle Sam and I worked for him for half money, half of what I could have got on the outside and all the time in the hope of being able to do some good, but finally I took up another line. These people that I have been with in 18 years have lost money. Now, that's too much, surely. The company is losing money every day and hasn't got a cent for a cold day when it comes around. Now, that's a question, how are you going to bargain about that?

MR. FREY: I don't think we should bargain about that. I think when a manufacturer is so incompetent that he isn't able to pay what we usually call the market price of labor it would be much better for the community, for labor in general and for the man himself that that man should go out of business. (Applause.)

Here is a manufacturer who is unsuccessful, he isn't declaring any dividends. Why not go to the material man and say this man should be able to secure his material at a less price than the successful man. You don't do that. Every manufacturer pays the market price for everything he buys except labor. (Applause.)

I believe as a workman that it is a little more important that labor should get the market price than that anything else should be sold at the market price.

MR. BARTH: They do take up the market price of supplies. They can't help it.

MR. FREY: I think you will agree with me that you never raised the question yet of what should be bargained about when it comes to paying the market price of the raw material. You have got to pay the market price.

MR. BARTH: I wouldn't say that because they did get it below the market price.

MR. FREY: Well, the fellow that did that was pretty clever.

MR. BARTH: I think we all want to do the right thing, only the question is how to get at it. Mr. Frey and I are absolutely working for the same thing, but it's only the question of how to get at it.

MR. FREY: Our motives are the same but our methods are different.

MR. BARTH: You come along with me and you will agree with me from morning till night. (Applause.)

THE CHAIR: I think as Mr. Barth said, one of the most hopeful signs of the times is the fact that this evening we have this element here, this discussion between Mr. Barth and Mr. Frey, both on this platform, they disagree and then decide again to agree. This discussion by the way, will be continued tomorrow morning in the round table conference in this room at 10 a. m. Mr. Frey has consented to attend. I asked Mr. Barth and he said he couldn't be, but I hope he will reconsider the matter and try to be here, because I think that the most permanent and tangible results from a conference such as this or discussion such as we have had and such as we may have tomorrow morning is if we do nothing else we bring out these differences and it is one of the most excellent things that can be done. It is getting light on all sides. But I won't consider our discussion closed until we have heard if not more than a few words from one of our members whom we respect and who has already given us a great deal of inspiration and has opened this conference, Mr. Knoeppel.

MR. KNOEPPEL: I am going to make one statement and in making it I trust the statement will not be misconstrued, because in a way its a wrong statement to make, and that is what this trouble here that we are now in is a blessing in disguise to the world, because we are going to get as a result of the war, rid of autocracy. Autocracy is going to be abandoned, and it will bring about a solution of the troubles between capital and labor and if we do nothing else beside that one thing I believe the war will have had its compensation. Five years ago I made an analysis of the work I was in. My partner and general manager, Mrs. Knoeppel, rather, decided that I should be living at home, and I desire to be at home, so I analyzed my situation to find out whether it was necessary and why it was I was traveling all over the country, never home, working long hours, taking losses, if I made them and the gains when they came, and I wanted to see if, after all, the thing was really worth while. It began to look at one period as if capital and labor could not get together, but I concluded as a result of my analysis to stay with the game and fight until I was finished with my work. So I am interested in the solution of this question of the relationship of capital and labor, and I think happily the war will bring it about ten or twenty-five years closer than otherwise. (Applause.)

THE CHAIR: I know the hour is late, but I would like to hold the meeting open for a few minutes longer in order to hear from another one of our guests who spoke this afternoon and whom I know you will all be glad to hear from again. I will ask Mr. Grieves, Assistant Secretary of the Jeffrey Manufacturing Company to speak to us.

MR. GRIEVES: Mr. Chairman, it seems to me it would be entirely out of place if I were to try to add to anything that has been said here tonight. I don't know when I have heard anything that is so gratifying to me as the address of Mr. Frey, also the remarks of Mr. Barth and these other gentlemen who spoke. It has been my privilege to be a labor union man; it is also my privilege at this time to be an employer. I do say that those of you who heard me talk this afternoon may realize that I believe

in both, the arguments of both Mr. Frey and Mr. Barth. Mr. Frey has said their motives are the same; their methods of obtaining them are different. Now, that is the question we want solved. If we can get together we would have very little difficulty in solving our misunderstandings, but we know frequently labor representatives do not represent labor, on the other hand employers do not represent employers. So, it is a question, as I say, of the elimination of those who are doing it for personal gain and the establishing firmly of those who are contending for what Mr. Frey and Mr. Barth are. (Applause.)

THE CHAIR: The exhibit room will be open for a half an hour after this meeting. We will now adjourn to meet tomorrow at ten o'clock.

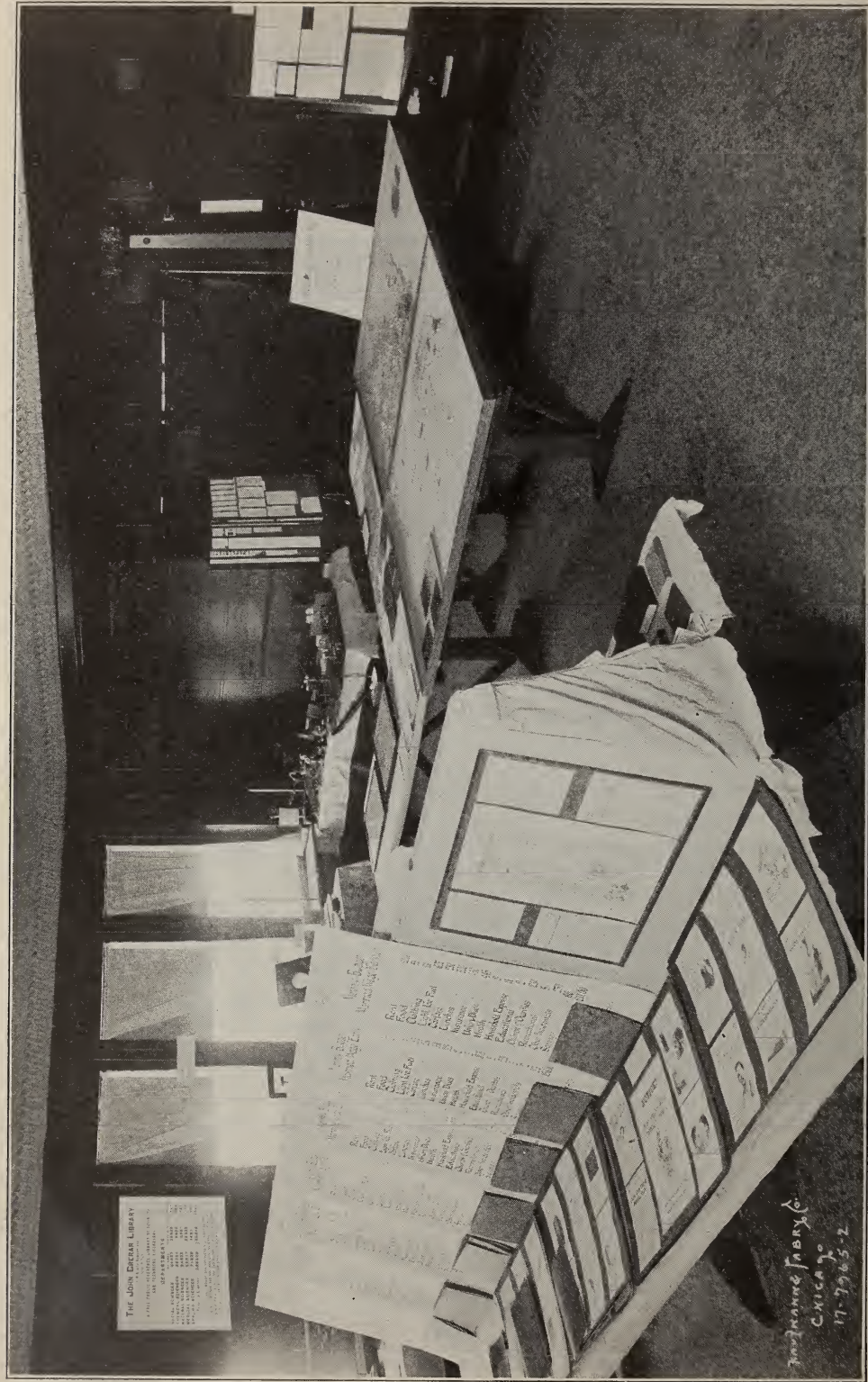


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SIXTH SESSION

FRIDAY MORNING, MAY 25, 1917.

Round Table

Francis A. Carlisle, Chairman.

CHAIRMAN: The subject for consideration this morning is Labor's Viewpoint. After hearing the remarkable concise presentation last evening by Mr. Frey of labor's viewpoint, I am sure that anything I might say would be of no particular benefit or interest to you. Therefore I will not inflict myself upon you but throw open the subject for general discussion.

MR. NORRIS: Mr. Chairman, just to get the opinion of some of the gentlemen here who have had experience in obtaining the co-operation and democracy that Mr. Frey talked to us about last night for labor, I wonder if any of the manufacturers here have tried a committee of laborers to treat with their fellow laborers and the management of problems affecting both. I know in the few factories that I have been in, the laborers often-time take advantage of the management when the management is lenient, they come in late in the morning, they don't start working on time; they quit early at noon, and they waste time running back and forth. Is it possible to elect a committee in the factory, representative possibly of the laborers from each department, to act as the self-disciplined committee to see that the laborers get a fair deal and to treat with the management in seeing that the management gets a fair deal. Has anyone had any experience along that line?

MR. FITZGERALD: I would say for our factory that we have a factory board composed of the treasurer of our company, the assistant superintendent, one foreman and three factory men; one man from the machine shop, a man from another department, and a man from the shipping department. These men meet once every week and talk over conditions. We find in that way we have kept our men more satisfied. If they have a disagreement it is taken up with this board and they thrash it out. Of course, in my position with the company, I am between the laboring men and the management. About a year ago, I got a little idea and put it up to the management of our company. They told me that it would cost too much, that they could not afford to spend the money. "Well," I said, "you loan me \$1,000 and allow me to put a commissary in our lunch rooms"—we had a lunch room at the time for the foremen and another lunch room in the factory for the men—and, "I will repay you the \$1,000 and in the meantime do some real welfare work." They said, "All right,

go ahead." We had a nurse who had charge of our first aid department who was very competent, and got good pay. I took her and told her that I wanted her to visit the homes of men who worked for us whom I knew had sickness of some kind or another, and I took another young girl from a factory and broke her in to the first aid department. I then established this little commissary and sold coffee and milk and so forth at the cost price to our men. The first month I started this our little commissary cleaned up \$110.00. The second month something like \$240.00 and now we are averaging \$550.00 a month. These men are paying their money in and getting something in return in real welfare work. This nurse goes out and does a whole lot more than I could do in the families of our men. Our men would resent my going in and prying into their private affairs but she can go in and find out a whole lot, and I can afterwards take care of it. That is the way we treat our men. I can say that while we haven't reached the millennium or anything like that, we are in very good condition. I think if more companies would work along that line, the welfare line, they would get better results.

MR. GEO. MACKAY: Mr. Chairman, I don't wish to appear in the situation of injecting a discordant note into these sessions, which are so splendid and so helpful, but I can't help feeling that there lurks in the back of my mind a feeling that pervading all these sessions there is a lack of comprehension. To my mind they have been too technical, too isolated. It appears to me that we look upon efficiency as a method. Now, efficiency is not a method, it is an ideal. Ideals depend on moral forces, resolving the movement of history back into its constituent elements. The one thing that the human race has ever attempted to hold to the forefront is the element of courage. Now, we are in the midst of a great world movement. Into what, in terms of form, in terms of constitution an organization it will eventuate itself it is beyond the mind of man to tell, but of one thing we may be reasonably certain, we are on the highway to democracy. That has been recognized by Roscoe Pound, dean of the Harvard Law School, when he says that one of the outstanding facts of the present day is the transfer of the center of gravity of legislative action from property to social rights. Where are we going to end? Now, anyone with a spark of imagination can see mighty clearly that the impetus given to group action and to morale that is going to result from this war is going to create a new world; and one of the great tasks of America, as James J. Hill has pointed out, is not to create for a nation a place for itself under the sun but to so organize itself that its daily overhead expense account can be so systematically and so scientifically arranged as will measure to the largest extent of human happiness and prosperity. Now, it comes right back to the question, as I look at it, of wages and housing conditions. I wish in no wise to detract or divert the attention of this meeting, but when you go all over this country and you think of the housing conditions of the great majority of the people for one thing and the wages on the other hand, we are a mighty long way from democracy and human happiness.

Now, all our wealth goes back to force, the land force, the seas and the mines. All our happiness and all our prosperity depends upon the work of

the common laborer. We have done absolutely nothing to stabilize the work of the common laborer. The only outstanding instance that I know of, an attempt made to stabilize the lower strata of our industry, of our industrial order, has been done by the Ford Motor Company, and anyone who is familiar with their work knows how wonderfully that lower strata has responded to that plan and how they have developed under the stimulus of a living wage.

It seems to me really a point of view that is more comprehensive than mere method; you have got to reach back to humanity. Our civilization in this country, from the time of the Civil War at least, to the present, has been dominated by mechanics. That must, from now on, give way to the wider comprehension of humanity. It doesn't interest me particularly the direction or the particular form of organization in which this spirit of humanity is going to eventuate itself. The thing of which we stand in need is to grasp the fact that there is this movement for humanity, and if I ventured to express a criticism, I would say that is the outstanding thing of which a large group of which our industrial leaders are deficient, a lack of comprehension and a lack of sympathy or appreciation of the trend of the times.

Gentlemen, we cannot ignore the trend of the times. We are making history mighty rapidly and within a quarter of a century we are going to live in an entirely different world, dominated by different moral forces, dominated by a different system of economics than, I believe, has obtained in the past, and that is the way I look upon the situation. In view of that, there has arisen in my mind the feeling that from these meetings something more could be decided. (Applause.)

MR. J. P. FREY: I took up a great deal of time last night and I came this morning to listen, with no intention of saying anything unless I endeavored to answer questions. The last speaker has stirred up a good many thoughts in my mind because he has hit the nail on the head, I think. My own experience is a peculiar one. I was a workman. For the past two or three years I have been very active. I have had the good fortune to associate with engineers and I have a large number of associates among employers. I have handled a good many strikes, carried on negotiations with employers. I have been in the game from the top to the bottom, which means I have had experience. I have made some study of this scientific management, so-called, and I have the greatest of admiration for much of it. I think that the efficiency expert who is able to eliminate any unnecessary labor or introduce a new process is as great, if not a better benefactor, than the man who made two blades of grass grow where one grew before, but in coming into contact with those outside of my own group, the educators and the efficiency engineers and some of these men who never have had any practical experience, but with a love for their fellow human beings, endeavoring to work out some scheme for improvement, I have noticed this: It has always seemed to me to be a most treendous handicap that their minds, the trained man's mind, the efficiency engineer, the mechanical engineer, the professional philanthropist, looking for some system that is going to bring justice; placing their faith in some scientifically prepared formula

which if applied is going to do away with all these unjust, unnecessary conditions that make so much trouble between men—the longer I live the less faith I have in formulas for accomplishing results where they are applied to human beings. It is an entirely different situation when you are applying a formula to chemicals or to machinery. When you try to apply these formulas that you work out to human beings, I think invariably you will find some factor that has been overlooked that completely wrecks the results. There are a group of students, economists, who have spent a large number of years in studying trade agreements. They seemingly had faith in some form of agreement the provisions of which and the language of which would establish justice if they were only applied. I negotiated many agreements with employers, sometimes with individual plants, sometimes with employers, covering a large territory, and I have found that the language of the agreements, the provisions provided, contained in the agreement have very little to do with the successful working of those who were covered by the agreement; the important thing not being the language or the terms of the agreement so much as the spirit, which actuated, which is controlled by the agreement. Now, if I have any criticism to make of scientific management it is only in that part of the systems which you have worked out which applied to labor, and I say the failure has been to bring about a willingness to co-operate, a failure to recognize that like creates like. There are men holding official positions in the trade union movement who are grafters and who should be in the penitentiary because of that fact, but they never could have existed had there not been first an employer who was willing to be a bribe giver, so that punishing the grafter is not getting at the core of the matter, or enacting laws against bribe giving is not going to cure the thin. It can only be cured by establishing the proper attitude on the part of everybody concerned in the industry.

There is a revolution going on, just as Mr. Mackay has said. We do not recognize it in this trade union movement that I am in. We are the revolutionists. We are more revolutionary than any other movement among men that I know of, with, perhaps, the exception of those who believe in turning over all of the means of production and distribution to the people themselves. We do not feel that we are revolutionists. I have no feeling of a revolutionist. I feel that the work I am doing is constructive, but I have begun to recognize the fact that the great revolution that is taking place is the final one in civilization. If you will bear with me for a moment so I may make it clear, it was not many centuries ago that no man worshipped the Almighty according to the dictates of his conscience, he worshipped the Almighty according to the formula which the wise men and which the best men had drawn up and which they thought, if not scientifically sound, was theologically sound. It was found it would not work and a good many men lost their lives before democracy in religion could be established.

Now, in this country today no one questions the right of any individual to worship in any church in the community. There is no question about it, about every man's right to worship as they please. In fact, we would resent any attempt to force religion upon anyone else, because we

would realize that if it succeeded the next day it might come to us. That is true of us. The original idea, I presume, in the minds of the theological teachers and the church men in the church was that the average man does not know enough about these questions and it was unsafe to allow them to begin to think for themselves and co-operate among themselves on the question of religion. The same was true in political government. There was a time when the few thought they had a God-given right to govern others, or, as old Rumbolt said, "Some men were born in this world with saddles on their backs and other men booted and spurred to ride upon them."

Now, thrones have been overturned, dynasties have gone out of existence, so that the principle of a man's right in determining the laws under which he was living should be recognized. In this country we have given a practical application to the idea. Other countries are doing the same. We have won democracy in religion and we have won democracy in government, but there still remains a tremendous factor in our lives, that is, in the lives of the great masses of the people, and that is the one I referred to last night: In industry there isn't democracy. Little gleamings of it are found here and there, but the management is convinced that it cannot allow the workers to participate in determining rules and regulations inside of the plant. I have had practical experience. I am not discussing this thing theoretically. Now, I know in more than one instance where if the workers over night had been given the power to determine rules and regulations the sheriff within a very short time would have hung the red flag over the door, but I also know of employers having everything their own way, and you gentlemen from your own experience have found how inefficient and incompetent a very large number of employers are to manage their own business. All they have done is mismanagement and they have all had that theory, "I must have the right here." They still have that same element which is operating in their minds, that there must be autocracy. My conviction is that it is not formulas which you can work out; it is not the careful efforts which you may develop so that your time studies may be as accurate as possible; it is not your being able to determine through the methods you apply whether a thirty-three and a third per cent bonus or a twenty per cent bonus or a twelve per cent bonus is the one best calculated to bring the most satisfactory results so far as production is concerned. These may be important questions, but to my mind far more important than that is introducing the spirit of democracy into industry, recognizing the fact that where you set down hard and arbitrary rules for other men to follow, unless they are given a voice, unless they take part in agreeing that these rules are wise and just and acceptable to them, you are going to foster the very same spirit that led to the reformation in Germany and that led to the revolution of the American colonies.

Now, I am an American. I do not mean I was born in this country. I say I worship the institutions of my country. I think they are the finest of any country in the world, but they must be carried all the way through in all of our relationships, whether it is that of citizens to each other or as employer to employe, if we are going to be successful in the long run, if we are going to prevent revolution in this country at some time or other. We

have had civil wars in this country within the last few years. We have seen th conflict between capital and labor or the employer and the employe reach that stage where the state courts, apparently, were no longer effective, where the state militia was ordered out and they created a condition that seemed to be still worse and it became necessary for the Federal Government to send Federal troops into a portion of the state so that the anarchy created by the state courts and the state militia could be suppressed until common sense and a desire to bring about justice had begun to operate. Now, that is a civil war, gentlemen. That is civil war on a small scale. Civil war in the state of Colorado, for illustration. Now, you can't cure these things through formulas that you may work out, no matter how good your intentions are, no matter how you may study and analyze. You are never going to cure these problems through formulas. You are going to cure them rather by conceptions which will enter into men's minds. I said that like makes like. My own experience, and I am just an average human being, is that if a man will sit down and give me half a show, I feel I have got an opportunity of making a little progress towards the settlement of some question that has been referred to me. When an employer meets me with a closed and an armed fist he arouses exactly the same feeling in me, and then instead of desiring to settle the question absolutely on its merits I want to fight. Now, in our trade union movement we have a lot of men who are scrappily inclined. Mr. Chairman, perhaps I am taking up too much time?

THE CHAIRMAN: A few minutes more.

MR. FREY: I am a man that when I have entered into an employer's office and the employer would say something which I resent myself, I try to be reasonable about the matter. One employer said to me not long ago, "If all of the men were as reasonable as you are, Frey, we would get along all right, but I have got a Shop Committee here and I can't do anything at all with them. Half of them are no good. They are not my own men. They come into my office and I might as well try and do business with the old Nick himself as with them. If you will get a decent Shop Committee, perhaps I can do something." I told the gentleman that the union did not select that Shop Committee, that he had selected that Shop Committee himself, that he had picked out the most stubborn and the most illogical and unreasonable men in his plant. Of course, he would tell me right away that I didn't know what I was talking about, but I would explain it to him. I would say this, "You have among the men in your plant some whom we will call home guards. Perhaps their parents were born here and they own a little home here and they don't want trouble. The average man doesn't want trouble any more than the unions want trouble, he is afraid of it, he don't want the expense and he don't want the risk that is involved in a severance of relations between the office and shop. Now, for some reason or other you have not cared to deal with the Shop Committee, you have not looked upon these men with particular favor, and through the one thousand and one means that you, your general manager, your superintendents and foremen have, you have punished the good men whose interests lay in being the Shop Committee men until the men you want, the good men, your local

men are unwilling to serve on the Shop Committee, they feel they are running the risk of your disapproval to such an extent that your disapproval will reach them, and the time has been reached when none of the type of men that you want are willing to serve on the committee. And, finally, there is a union meeting and the chairman of the meeting would say, "Down in Brown's shop there is no Shop Committee. Who will volunteer to act as Shop Committee." And finally some fellow who has got nothing at stake will get up and say, "Well, Mr. Chairman, I am not afraid of the boss, I will volunteer to act as a Shop Committeeman. I will show that boss I ain't a-scared of him." And so the employer selects the type of man who is going to be on the Shop Committee.

Now, it is the attitude that is the trouble, the attitude of the men in the office reflecting itself in the attitude of the men. It is the attitude in the office, and I say this from my personal experience, it is the attitude of the office more than anything else that determines the attitude of the men. Now, you have got to know something about the time required to do the job. You must know something about costs. And if you hope to solve this problem by merely working out formulas, my opinion, gentlemen, is that you will be no more successful than the theologians were in working out their creeds, some of which we scarcely know the name of today.

MR. WALLACE: Mr. Chairman, if I may, I wish to say in the course of my experience in the past twenty years I was working down at Chicago Heights and working for a concern there, getting what I considered a fair wage. I learned of an opportunity to change my position and work for another institution in that town and immediately made application for the position and was accepted by the superintendent. I went into that plant as a tool-maker. I hadn't worked there three hours before I was visited by the Union Shop Committee and asked to show my card. I told them I did not carry a card. I would have to do so if I wanted to work there. I told them that was a matter they would have to discuss with the management and not me, the management had seen fit to employ me and I intended to remain. Now, then, all the arbitrary methods do not come from the management. These men were local representatives of the Union and it was an open shop, but they tried to enforce me and intimidate me for weeks to join their Union. I didn't feel it necessary so to do. I was of that frame of mind, just as Mr. Frey says, I was one of that kind that wanted to fight and I was expecting it, but it just so happened that the particular delegate to that Union, the Chicago representative here, was an old personal friend of mine. We had been fellow athletes together and walkers and runners. He went down and he told the Shop Committee, "Lay off that fellow, he is all right." I stayed there for months and I was a good fellow, but the spirit of the thing, the intimidation of coming in there and telling you that you must do so and so is entirely wrong.

MR. MACKAY: In the issue under date of March, 1916, of the bulletin published by the Colorado Fuel and Iron Company, there appears a statement substantially like this: "In the balance sheet of any organization, in the assets, rather, of any organization there are items which do not appear on the balance sheet," or something of that sort, "of which the most con-

spicuous is the loyalty of any group of employes and of which we are proud to say that we stand preeminent."

Now, speaking of comprehension, I am going to repeat something that I said here. I ventured to suggest yesterday morning, I don't think that any group of men, efficiency experts or employers, could employ their time or invest their time to greater profit than to read the first volume of Buckle's History of the Civilization in England. I have read most of the efficiency literature that has been produced, but I want to say that I lay Buckle's History of the Civilization in England under greater contribution than all the efficiency literature I have read. This appears in four volumes and may be secured at one dollar for the four volumes from the National Library, 114 West 14th Street, New York City. Speaking of motives, no man has studied the motives in terms of loyalty like Royce has. It goes to the very root. But it is as old as the hills. The same idea was supported by Ruskin in his essay "Roots of Honor," when he said that the great problem in regard to the human machine is to find out the motive by which it operates. (Applause.)

THE CHAIRMAN: The time has now come for closing. I trust that the things that have been said here will be instructive and we will be able to go to our various places and apply these things. I know that I have profited.



HARRY F. PORTER

SEVENTH SESSION

FRIDAY AFTERNOON, MAY 25, 1917

A. B. Segur, Chairman

THE CHAIRMAN: The first speaker will be Mr. Harry Franklin Porter of the Executives' Club, Detroit, who is also an old member of the Western Efficiency Society and before leaving Chicago for Detroit one of our most active workers. Mr. Porter will talk on "Safety First."

MR. PORTER: Mr. Chairman, men and women of the conference: You notice that I am using the modern term, disregarding ladies and gentlemen. (Laughter.)

I think this program was not arranged very well at the start, but I think it has been re-arranged very scientifically. It has always been my opinion that they should have the best for the last. Therefore, I am not going to prevail upon your time at great length. I am going to get myself out of the way as speedily as possible, as befits an opener, to prepare the way for the good things that are coming along in an ascending scale later in the program and culminating with our good friend from Providence, Frank Gilbreth.

I do not know as I can add anything especially new on the subject of Safety First. It is a subject that has been pretty thoroughly covered, analyzed and propagated throughout the country in the last few years. It has been one of the most amazing movements of modern times.

However, there are a few thoughts that I would like to present for your consideration in connection with the movement. I never have been a safety first man primarily. In fact, at a safety first meeting recently, where I was a speaker, I was accused by one of the men, after I had delivered my talk, of never being a safety first man, that I never played safe. Well, that depends upon your definition of safety first.

We can conceive of such a hopeless condition down there at the corner of Madison and State, for instance, with no traffic regulations or anything; people and teams and automobiles and everything else all madly trying to scramble through at the same time, and some conservative man or woman standing aghast at the possibility of getting across, and saying, "Well, I am going to play safe. I am not going to cross."

That is not, of course, my conception of safety first. The pacifist is one example of the safety first man. But that is not the conception of safety first that I have. My conception of safety first is—well, I might word it another way. I believe if you pay proper attention to efficiency that safety will usually take care of itself.

Take the little example in traffic congestion. If we look at the problem

as an efficiency problem, analyze it and arrange things in order and provide the proper regulation, it then becomes safe, and you will find if you analyze the causes of industrial casualties or accidents that you will uncover one after another sources of inefficiency. That is one of the corollaries, the by-products of the safety movement,—increased efficiency.

On the contrary, you take establishments where efficiency has been first, where the safety movement has not been recognized as such until quite a long while after efficiency has been well recognized, there the safety problem has never been of very great moment.

I have in mind particularly the plant of Joseph T. Ryerson & Son, of which Mr. Berndt is the manager of the betterment department, and under him comes safety. In confirming or in verifying that impression in going about visiting different plants, I almost invariably found that in the efficiently managed plants the accident question never has been of real serious moment. It is taken care of instantly. I do not know of an engineer who does his work properly who does not consider that. He is dealing with safety factors all the time. He considers that when he selects his unit stresses and works out his designs. I do not know of a construction engineer on the job, who in doing his work does not do it economically, quickly and safely and without the sacrifice of human life.

However, with the speedy evolution of the marvelous growth of American industry and the quick passing away from the stage where the owner of the concern was in intimate personal touch with his employes, where he could watch everybody, to the sudden expansion on a large scale of operation where the supervision and management was so far removed from the men that a great deal of carelessness got into the supervision down along the line in minor positions, the result was a harvest of accidents. That was also partly due to the fact that there prevailed throughout the industries the belief that that was the workman's own risk, the same kind of policy in "let the buyer beware," that used to prevail in buying.

Through the humanitarians, business leaders, and others we have now gotten levers working by which we have gotten the manufacturers convinced of the fact that accidents are a legitimate expense of burden or tax on the industry.

Now, that puts a different phase upon the situation at once. It makes it possible by proper cost accounting methods to absolutely justify every reasonable or sane measure of accident prevention. I venture to say that if the cost movement had become sufficiently developed ten, fifteen or twenty-five years ago, so that we had department costs, the costs of accidents, of turn-over and the cost of broken time due to accidents or sickness growing out of that condition,—if that could have been shown up as an element of department expense, the eyes of the managements all over the country would have been awakened to the importance of this great element much sooner than it has been.

I was here in Chicago at the time the National Safety Council was organized and was much interested in the movement and participated for a while in the organization work of this council as an editor and one familiar with the influences reaching managements as to the best methods of pro-

pagating the safety first movement. Those who were the main principals in the organization were filled full of the humanitarian aspects of the question. That is very fine. It was the fact they were engaged in the great business of conserving or saving human life that appealed to them, and that is what they wanted to do. They wanted to go all over this country like Billy Sundays, talking to manufacturers on that side.

I told them that I was just as great an apostle of human rights and a lover of human beings, as anybody; nevertheless I thought they would get much better results if they would approach it from a more practical standpoint. A cold blooded standpoint, if you please, an economic standpoint. And I helped them get up some letters that advocated accident prevention and organized safety work in plants, purely on an economical basis of dollars and cents, that it would absolutely pay.

Well, they did not like it. It was too cold blooded. However, they found it necessary before they got very far along in the work to come to that basis of approach.

Mr. Knoeppel in his opening speech the other day pointed out the fact that thirty-five thousand lives are lost in industries every year and something like 700,000 lives are jeopardized by accident.

Now, that is a tremendous toll. It has been cut down tremendously through the work of the safety engineers and the organized safety propaganda, that is true. For instance, the United States Steel Corporation forty-six per cent since 1906 is the record. They have cut their accidents forty-six per cent. Each year twenty-three hundred of the men employed by the corporation are saved who would have been injured under previous conditions.

* The Eastman Kodak Company in the last five years have reduced accidents in their plants over seventy-five per cent per annum.

Just consider this question in connection with our present war situation. Never in the history of the world has the human individual unit been of greater importance than just now. An increasing price is being placed upon the human individual. A great many people years ago thought that as civilization grew and the population increased that individuals would become of less and less importance, and I am afraid many of us have become soured on life and given up the struggle, because we have felt we were so insignificant as compared with the great mass that it did not pay to keep up the struggle. Now, one of the by-products of the war is accelerating that viewpoint which is placing a greater value upon the human individual as never before in the history of the world. Never before has life been so dear and so sweet as now. You can see what it means—thirty-five thousand. I venture to say we will be in this war a great many months, maybe a year, before we have thirty-five thousand men killed on the firing line, and maybe we will not have as many as that and as many injured as 700,000 during the whole period of the war.

But because these accidents do not receive notoriety in the press and are scattered all over the great expanse of this country, they do not impress us. For every one of those men who is killed we have got to rob the army of one who would go. Place it on that basis. So it becomes more

important now than ever before that safety work be recognized. If we can cut that down twenty-five thousand men this year, we will have twenty-five thousand more available for the war front.

I was talking to a man in Detroit the other day, where they have gone a long ways in safety work, where their machines are safe-guarded as perfectly as perhaps possible. They have lately been substituting men with women. In one particular case the punch press; they had it safeguarded so that ninety-nine out of a hundred men, or perhaps everybody questioned on the subject would have said that machine is absolutely fool-proof. There was a little bit of a hole, hardly bigger than your finger, that was the only place where a person could be hurt. Yet one of the girl operators, who was thoroughly taught about the scheme and thought thoroughly competent to handle the machine, got her finger in there one day and lost it.

We are facing the situation, perhaps, of employing in industries thousands and thousands of women, who have never been before in industry, who are unfamiliar with the conditions there, and it becomes increasingly important that we provide as a part of our training preliminary training for these women, like accident prevention and safety work, and in this connection we might very well plan to make use to the fullest extent of the very excellent device that Mr. Gilbreth has developed, the motion pictures. I know of no better way in which women who want to go into industry, who register for the service, can be given so much training in the proper kind of accident prevention work, as by means of the motion picture.

So much for that. I said a little earlier in my remarks that if you analyze the cause of accidents you uncover one after another sources of inefficiency. You will find, for instance, one of the causes of accidents is poor lighting. We also know that poor lighting is a big cause of spoiled work and of lessened production.

We have experimented in my own plant with that. In installing new lighting in a new plant I arranged also for the same system of lighting as before. Within a few weeks after the new lighting was installed the efficiency was increased ten per cent. Then the old conditions were restored and very promptly it sank to its former level. Then we restored the new conditions again and in a very short time it recovered that ten per cent loss; proving, I think, unmistakably that lighting has a very important part to play in production.

Over twenty-five per cent of the accidents are credited to poor lighting. About twenty-five per cent of spoiled work, of which the grand total is something over a hundred million dollars a year—I am not quite sure of my figures, but it is an enormous amount of money that could be saved there, so by correcting a condition which is prolific of accidents we also gain heavily on the other side.

Take the question of hours which was discussed so ably last night. Long hours have proved to be a prolific source of industrial accidents. Men become very tired and they do not sleep enough to be fresh the next day; just drag through, and to men in that condition, there is always something likely to happen. There ought to be a time of rest. Accident statistics show that it runs higher during the morning hours until the noon, and then after

that it goes down. Undoubtedly there ought to be a respite during the forenoon.

Then there is the question of interest in the work. Minor men furnish a large part of the accidents, men who are not interested in their work, thinking of the good time they had last night, or a quarrel with the wife, or they have a grievance, their minds on everything except on the work,—they are the men who are getting hurt. That goes right back to the question of efficient management. If we can solve the problem so as to get the men interested in their jobs, such as Mr. Frey described last night, we will have gone a long ways towards solving the accident problem.

Under-nourishment and outside conditions, environment, all enter into the problem and can only be solved by a kind of follow-up work that is done particularly in the plant of The Joseph-Feiss Company, Cleveland.

You have got to hunt down this trail of inefficiency, wherever it may lead, inside or outside of the factory, and all over, covering the home-life of the man, his recreations and everything.

Then there is the attitude of the foreman. Men are of different temperaments. Some men, no matter how autocratic, despotic and inhuman and brutalizing and bull-doing the foreman may be, are not affected by it. But the great majority of us like to work for men and work best for men who win our sympathy by kindness and consideration. I am satisfied myself, although it is hard to prove consistently, that bull-doing bosses are responsible for a great many accidents. They scare the men, and they draw into themselves, and get nervous. Speaking personally, I know when I get into that condition myself, then is when things go wrong, accidents happen.

Green men, untrained men, are one of the great sources of accidents. About the first week I had my automobile and was very green in driving it, I had several accidents, one of them cost me twenty-six dollars. It was quite a caution to be very careful. But now I can drive even in Detroit, where they have streets criss-crossing in every direction and where a man who never ran an automobile perhaps would not venture. I run it under all sorts of conditions any time of day or night, at the worst corners, without any thought of danger. That is because I have become skilled in running it. You cannot expect green men and women who have only a superficial knowledge of machines and are expected to operate them to run these machines without getting hurt.

That brings up the question of training schools. Why should not every factory have a training school, where all new hands might receive a thorough training before they are put out in the mad rush of production, where excitement prevails and the main thought is to get out production?

Over in the Ford Motor Company they found one of the greatest difficulties was a mad desire to get out production. The foremen were not interested in safety. A machine might not be safe and they were not interested. They wanted to get out production. So it was necessary to give authority to the safety engineer to stop any machine that he thought not safe.

I venture to say, getting back to the cost side of it again, if the cost of accidents were shown up properly as a departmental expense, that the



W. R. DE FIELD

foremen would be just as much interested in having a safe department as a department known for holding up its own in a production way.

Absence of good traffic regulation is a big cause. You find in many factories work piled up criss-cross, no style; trucks cannot get by; turmoil. You must expect a harvest of accidents under those conditions. You have got to have everything in order. And back of that is decent orderly thinking, thinking right. That goes back to the management. If the management does not think right it necessarily follows that the factory will reproduce the mental attitude of the management. And the same way if the workmen are careless with one another, and if the foremen are careless with one another, it probably means that the man who is the dominant mind of the establishment is indifferent to human losses. He does not care whether men get hurt or not. The management has got to be considerate of the human side of it. If they are considerate of the human side of it the foremen and all the other men down the line will reflect the same attitude to one another.

You will notice I am coming now to safeguards. In the early part of the safety movement that was one of the big things. Safeguards were very important. Yet in my opinion they are of the least importance. You need them, but they won't of themselves prevent accidents. After all, it comes down to the individual, the efficiency of the individual; and even the most efficient of us are sometimes careless. We get absent-minded, like Mr. Knoeppel did last night when he dropped his glasses and broke them, like Mr. Emerson did down in Washington when he tried to get on a street car under conditions where he should not have attempted it.

But nevertheless, that is after all the real notch of the problem, to reach the individual, to have him think decently and to be thinking of the other fellow and to be thinking of safety and efficiency himself. That is a matter largely of organized instruction. The whole shop has got to be included.

THE CHAIRMAN: The next speaker is Mr. W. R. DeField, superintendent of systems, Montgomery Ward & Company, who will speak of the Corporation School Movement, a work which he has been closely identified with for several years.

MR. DEFIELD: Mr. Chairman, ladies and gentlemen: I will try to stay close to the subject of the corporation school movement and endeavor to stay within my time.

CORPORATION SCHOOL MOVEMENT

By W. R. DeField

The Corporation Schools of today are so numerous that probably all of you are quite familiar with the plan of operating of at least one, and probably more than one, such school. It has often been said that the Corporation School was made necessary because of the failure of the Public School System to properly train our young men and young women to read, write and spell. This charge has been made openly by many, but I believe the charge is without foundation. Of course, occasionally, there is a school

which is not up to standard just as there are many business houses which do not measure up to the standard.

The Corporation School has come into existence because of the necessity for training young men and young women to know the details of how to perform the tasks peculiar to a particular business. The apprentice system has been in vogue for a great many years, and now becomes a part of the Corporation School because it is realized that instruction given by instructors is much more beneficial to the apprentice than the knowledge he may acquire by knocking about the shop for several years.

The loss in training new employes to the semi-skilled positions in the past was not even considered, as it was thought the correct thing to hire Peter or Mollie and have Bill or Mary show them how to perform their tasks. The foreman would say that in a day or two the new employe was doing well and O. K., or that he or she was hopeless and replace with another new employe, and the endless chain kept moving.

Here and there, as competition became more keen, the up-to-date managers began to heed the advice given by students of the labor situation and began to devise labor systems for new employes. These training systems in most large concerns include the selection, placement and individual training of the new employe. These plans have extended to the point where many of us send representatives to all the leading Universities each spring and attempt to sell our organizations to the students. After interesting the students in our lines, then we select those who seem fitted for our needs and when they report they are given from six months' to four years' training for the positions to be filled. Why the training, you may ask? Because schools or universities may turn out engineers or highly educated men and women—but they cannot be expected to give training in individual lines. If there is a criticism, however, which I could utter against our universities who teach commerce and business courses—it is that too little attention is given to developing the executive qualities which a student may possess. Just as these plans have gone to the universities, we have extended to the public and high schools to find those students who are adapted to our lines and who are not to attend universities. When they come to us—The Corporation School does its share to teach them the ins and outs of business. For those who may have finished public school, but for financial reasons are unable to attend or complete high school, the Corporation School has developed the co-operative schooling plan, whereby the students working in pairs alternate at regular intervals one at work in the plant being trained either in commercial lines or a trade, while the other is acquiring that education to which all of us are entitled. Dean Schneider, of the Cincinnati University has developed this plan with remarkable success to give his students actual shop practice.

For those younger boys and girls, where it has been impossible for the parents to permit further attendance in school the Corporation Schools have encouraged attendance at night school, and in many instances have organized evening schools to teach the necessary subjects for the youngsters to finish the eighth grade.

Many of us have organized and maintained evening schools where ambi-

tious employes may learn the fundamentals of the particular business they may be in.

The Corporation School movement is rapidly gaining ground and to aid in the movement, The National Association of Corporation Schools was organized four years ago. This association has 104 firms or corporation members: General Electric Company, Pennsylvania Railway Company, National Cash Register Company, Curtis Publishing Company, International Harvester Company, Swift & Company, Ford Motor Company, Carnegie Steel Company, etc.

This association was formed primarily for the dissemination of information between members about both successful and unsuccessful educational plans. It now has permanent committees on, Public Education, Vocational Guidance, Employment Plans, Office Work Schools, Trade Apprenticeship Schools, etc.

The Corporation School movement is a part of the general efficiency movement, and will render its share of service to our country in this time of need.

For fear of getting over my time I want to end by saying that the movement in Chicago particularly has gained such ground that there are ten firms in Chicago, all over the million dollar class, who conduct schools with paid people in charge of them and paid teachers giving full time to the work. (Applause.)

CHAIRMAN SEGUR: I am sure that we have enjoyed very much this talk by Mr. DeField on Corporation Schools as well as the talk on safety by Mr. Porter.

One of the questions which all manufacturers are thinking of very seriously is the question of women and how women can be used in their industries. I never think of women's work in war time, however, but what I think of the two Irishwomen who had moved into England where their husbands came under the conscription act. Mrs. O'Flaherty was talking to Mrs. Maclagan the next day: "Good morning, Mrs. O'Flaherty, and has your husband been called up yet?" "No, thanks, he has not been called up. I guess he is too hard to be called up. I have been trying to call him up every morning for fifteen years to get off to work, and I have not gotten him up yet, and if his wife can't call him, I expect no one can't. (Laughter.)

I expect there are a lot of women in the United States who have a hard time to call their husbands up in the morning, but I do not suppose this is what Mr. MacArthur is going to speak of this afternoon. I have great pleasure in presenting to you Mr. W. S. MacArthur of Armour & Company. (Applause.)

MR. W. S. MacARTHUR: Mr. Chairman, members of the Western Efficiency Society: I am not going to take up your time with a lot of details this afternoon in regard to women's work in war time, for after what the chairman has said I am afraid that you would be in about the same mood as the men of whom Mr. Howard told about at Philadelphia. Everybody was waiting at a ticket office; there was a long line of people. A man rushed up, got in ahead of the line, threw down a dollar and said, "I want a ticket to Chicago." Everybody along the line got out and looked



W. S. MAC ARTHUR

at him, and the ticket agent says, "You cannot go to Chicago for a dollar." "Then where can I go?" And everybody along the line told him. (Laughter and applause.)

I do not want to be placed in that position. What I want to do this afternoon is to give you a very brief talk on the subject of women's work as it has appeared to me from observation and study, especially in the last six or eight months, giving you a little outline of the way in which it has affected Great Britain and France, Great Britain particularly, and the manner in which we expect it is going to affect us.

WOMAN'S WORK IN WAR TIME

Mr. W. S. MacArthur

MR. MACARTHUR: Mr. Chairman, Ladies and Gentlemen: The subject of Woman's Work in War Time has been suddenly thrust upon the industrial world for consideration, and it is the most important, from a commercial standpoint, which we have to analyze at this critical period. It is a question that we all hesitate to consider, but it is something that will not down, and the time has come when we can no longer dodge it but must consider it in all its phases.

It will no doubt be conceded by all, that the year 1912 was what we may term the last normal industrial year. 1913 saw the beginning of financial and industrial disturbances, which was arrested by the outbreak of the world conflict in 1914, and has since been converted into a period of business expansion and prosperity never before equalled in the history of the country.

The sudden stopping of immigration, at the beginning of the war, had an immediate effect. There was a quick and sharply defined industrial readjustment. Employers inaugurated a policy of retrenchment; operating expenses were cut to the limit and the labor force reduced to the minimum. Before this resulted seriously, the expansion of business in the east, due to the immense orders for war materials, and the bumper crops of the middle and western states, absorbed the various elements which threatened for a time to disrupt the business world and shake our commercial structure to its foundation. That is past. If Industrial America will now retain her grip and keep cool, not allowing herself to become excited over our entrance into this world struggle, there is no reason why we should not experience an even greater business expansion for an indefinite period, for I am a great believer in the good sense and sound judgment of the American business man.

America has been known the world over as a favored nation, and this was never more thoroughly demonstrated than at the present time. Instead of our having to enter this conflict, unprepared and absolutely without experience, we have had placed before us the almost three years' experience of Great Britain, France, Russia and the other Allies, so that we can make our plans with the knowledge that we can save ourselves untold suffering and expense, if we will. The early experience of our Allies must never be allowed to repeat itself here.

It is imperative that individual zeal and patriotic fervor give way to collective effort with its centralized responsibility.

When Great Britain found itself in this, the greatest war the world has ever known, and the like of which we fervently hope will never be seen again, there was a nerve racking period of anxiety and distress while the country pulled itself together, gathered its resources and organized for the supreme effort required to snatch victory from its enemies. As the nebulous theories and latent resources took shape and developed into concrete plans, there arose a murmur from her millions of women which swelled into the mighty chorus, "What can we do to help?"

This same question is being raised in America today, and we will no doubt find our solution in Great Britain's answer which has been clearly set forth by Capt. John Hay Beith of the British Army in a current periodical in which he says "that with the hard experience of the older Allies as a guide, the women of America should have no difficulty in recognizing the need of organizations, co-ordination and standardization of their noble efforts." Human nature is alike the world over and history is constantly repeating itself so we have no reason to believe that it will not do so in this case, but we can avoid a great deal of trouble if we learn our lesson from the experience of the European countries.

It is true in America as it was in Great Britain, that so far as the men are concerned, the problem is simple indeed. No man, especially one of military age, has any doubt as to what he can do. The elevated trains, street cars, automobiles, and in fact every public conveyance and bill-board, emphasize the fact that the Navy needs him now, or that the Army awaits his enlistment.

For women this matter is not so easily decided. As Capt. Beith so tersely puts it: "A woman's thoughts in war time turn naturally to one subject, and one subject only, the alleviation of pain and suffering."

We are now in the midst of an intense campaign for the Red Cross, a movement which in this country has not been as widely supported as abroad. This, of course, due to the fact that its necessity was not so forcibly present here, as with the countries of Europe, which for years past have been living on the edge of a volcano. There is hardly a city or hamlet in our country, where societies of women have not already been formed for the rolling of bandages, the stitching of antiseptic pads, and the thousand and one other activities which are so necessary. The Press is filled with reports of meetings of clubs, societies and various organizations, whose sole purpose is the raising of money to purchase materials for the manufacture of comfort kits and other necessities for the sailors and soldiers which our Government does not provide. While these efforts are to be commended, so great has the movement become that we are in danger of overlapping and wasting by misdirection, an immense amount of energy and skill which, if properly applied, would be vastly more efficient.

We are making every effort to centralize responsibility, and organize our tremendous resources in such a manner that we would obtain maximum efficiency from the effort expended. The plan formulated by the President of the United States and by the Congress for bringing to the service of the

Government, the brainest men and women in the country, through the Committee of National Defense, will accomplish that for which we are so earnestly striving, viz.: profiting by the experience of our Allies, avoiding their mistakes which would naturally have been ours under similar conditions, and the utilization of every ounce of our strength, both material and financial.

Among those who have studied the subject there has been the feeling that it would not be long before our Government, in response to the insistent demand of the women to share in the war's work, would adopt a plan for the registration of women so that their energy can be conserved and properly directed. Doubtless you saw in one of the morning papers yesterday, an article stating that the United States is to register all women for service in the war, and that a national organization is to be formed for this emergency. A voluntary registration day for women is to be established, according to an announcement sent out by the Woman's Committee of the National Council of Defense. The various committees of the National Council are working daily on the task of organization, and will keep in close touch with Washington officials, giving out bulletins from time to time, which will be in the nature of instructions. Time will not permit of our entering into detail, but it will be sufficient to say that this registration and organization, when fully completed and in working order, will have gone a long way in solving the problems that confront the women of the country today. This plan of the Woman's Committee of the National Council for Defense is in line with and follows the plan adopted by the British Government through their labor exchanges and other government organizations.

It was said during our civil war that it would have ended long before it did, had it not been for the devotion and intense loyalty of the southern women to their cause. In the years that have passed since then, the life of greater luxury to which we have been accustomed has not in any way abated the feeling of loyalty, and the spirit of self sacrifice on the part of the women of today. We see them with buttons and flags, and with various mottoes pinned across their breast, urging men to serve their country in the way they are best adapted. We see them with the recruiting officers, enthusiastic and earnest, bringing home to the men their responsibility. They are all consumed with an intense desire to do something; but their efforts would be productive of greater results if they only knew what to do, how and when to do it.

This was the experience of Great Britain and France at the beginning of the war and continued until the Government stepped in, took over the control of the various activities and centralized the responsibility. Since then, as the author previously referred to states: "The springs of patriotism and voluntary service are flowing more abundantly than ever, and now they are directed into properly appointed channels. No longer are some fields of charitable endeavor inundated or drowned out, leaving others dry and barren. Organized effort and regular distribution are the order of the day. All War Relief Societies are registered; unauthorized collection of money, especially in the streets, has been made illegal. Superfluous and spurious societies have died a natural death."

As the war developed, and the need for men became more acute in

Great Britain, clerks were withdrawn from offices, banks, hotels and other places, and were succeeded by women. It is hard for us in this country to realize to how great an extent this has been done. In the Liverpool office of Armour & Company, out of 70 men who were in our employ at the outbreak of the war, only three or four are now left, their places having been taken by women, and it has been a hard fight to retain these few for all of you have no doubt noticed from the papers that no male clerks can be employed in Great Britain between the ages of 18 and 61, except with the consent of the National Service Director, and such consent is not obtainable unless an extraordinary strong case can be brought.

The gorgeously uniformed men who stood at attention at the curb and opened the carriage doors, telegraph messengers, postmen, and even boot-blacks, have gradually melted away like snow in the sun, and girls and women have succeeded them.

Are we to face the same situation? Those of us who were privileged to attend the Conference at Philadelphia a couple of months ago to discuss Labor and Employment Problems, were deeply impressed by the statement of a member of the Committee of National Defense, who came direct from a twenty-four hour session of his sub-committee at Washington, when he said that the Government was not looking for an early termination of the conflict, and that no contracts were being entered into except upon a three year basis. We may well stop to consider the future of the industrial situation in the United States if the war is to continue for the period mentioned, or longer.

The first call for men under the selected draft has been made. We are soon to see the registration of all men of military age, and the problems that we can now see confronting us, are worthy of our most serious consideration.

In bringing women into the industrial field to replace men who have enlisted, or who will be drafted for military service, there are many problems to be faced and settled if we are to bring about this great change without serious disturbance of the industrial work. As the increased labor demand has in a measure kept pace with our industrial development heretofore, the difficulties which have arisen from time to time have been met and solved without trouble, but the sudden upheaval of all our fixed ideas, due to the world conflict, has taken us so by surprise, that we have been dazed into seriousness. But, whatever happens, we know that it is going to do our country good, as it did Great Britain in bringing her to realization of the condition to which she was rapidly passing, and stimulated her national life, in a manner earnestly sought but scarcely hoped for. Just so, this time of stress and industrial change through which we are now passing, will awaken our national life and ideas, and break down ideals and customs which were rapidly fastening themselves upon us as fetters.

So far as the United States is concerned, it is hardly possible as yet to say to what extent the increase in the number of women employed has been due to women taking the place of men, for we must bear in mind the fact, that there has been an extension in the number employed in certain women's occupations. On the other hand, we learn that in Great Britain since the

war began, the number of women employed in industrial occupations has increased by nearly 150,000 or practically six per cent, while the substitution of women for men in clerical and commercial occupations is known to be considerable, a statement endorsed by the fact that during the 13 months ended October 15, 1916, the labor exchanges alone had placed nearly 350,000 women in employment. Whatever view may be taken of the matter in regard to industrial occupations, there can be no doubt that a steady and increasing displacement of men by women has taken place in non-industrial occupations, and so far, women have not been employed to any great extent in the heavy trades nor have they yet, as far as it has been possible to ascertain, been given positions of responsibility over men.

A. W. Kirkaldy, editor of "Labor, Finance and War," stated in April, 1916, on the authority of the Council of the British Association, that at that time, 523,000 women were directly replacing men, and 737,000 women were replacing the men, either directly or indirectly. The entire labor world quickly shifted its opinion from one of doubt to that of amazement, at the results obtained when women were first introduced to the munition manufacturing industry. Today the volume and quality of their work has convinced everyone that without the assistance of women in the industrial field it would be impossible for Great Britain and her allies to win the fight. It has been found that women will turn out as much work, if not more, and in some cases a better finished product than men, if provided with necessary lifting appliances so that they are not subject to undue physical strain.

A critical study of the results of the forced employment of women, showed that those who had been previously occupied in gainful pursuits, attained a normal output with less expenditure of strength than those who had not previously been wage earners, and that the output of the younger women and girls, was greater than that of the older ones, this decrease in output due to age, beginning very much earlier with women than with men.

The demand of the time brought about the designing and creation of practically fool proof machinery, and in various manufacturing processes a great increase of semi-automatic machinery, with a necessary re-arrangement of duties, bringing additional operations within the strength and capacity of women.

Superficially, women present the same human nature as men, but there are certain points of difference which require certain consideration. For one thing, they are more self centered, and if they are to give of their best, need to be encouraged to do so. The very combativeness and ambition of the male drives him onward, but to get the same results from women they must receive indirect suggestions, and when the work is at all complicated, special instructions. In some positions women are vastly superior to men, and for others the reverse is true.

In our own plant it has been found that many of our female employees are among the swiftest piece workers, and best wage earners. We have many classes of work that are specially adapted to women, such as labeling cans and jars, painting cans, packing meats in cans, jars and cartons, trimming sausage meat, light packing work, etc. Many of these jobs are on a piece work basis and, due to the deftness of the female worker, they

have very substantial earnings placed on their credit at the end of each week.

To those who are familiar with modern factory methods, it is not surprising that women can do certain work. The impression prevails generally among the public that the great armies of men operating the machinery of our manufacturing plants are machinists; that a man who has served a sufficiently long time in the shops would be skilled in the operation of machinery and tools and familiar with mechanical processes generally. However, this is far from the truth. The number of men who are capable of taking an ordinary working drawing and carrying out its many, and often intricate requirements is decidedly limited. They are in a class by themselves and are known generally as tool makers. In every shop operating on a manufacturer's scale, there are men known as machine setters, whose duty it is to prepare each machine to perform some particular operation or series of operations. They attach the "fixtures" where necessary, adjust the cutting tools to their proper position and see that the required jigs and gages are at hand. In a very short period of time they can show an entirely inexperienced man, of average intelligence, how to place the rough piece in the machine, stop and start it, and after that all the operator has to do is to put in the rough part and remove the finished article, testing it by means of fixed gages. It is this development in the manufacturing trades that has enabled women to take up the work where the men left off, and handle it in the able manner that they have done. Even in the case of farm work; modern machinery has eliminated the laborous tasks of former years and makes the employment of women both possible and advantageous. Mowers, reapers, plows, harrows, hay-loaders, etc., provide for comparatively light handling with the operator riding the machines. A woman is usually dexterous but does not grasp the mechanism of machinery as readily as the average man, which makes her more liable to injury than in the case of men. It is of course impossible from a physical standpoint to have long sustained operations, for, as a general rule, a machine operator is unable to sit down, especially when attending several modern, automatic machines. In Great Britain it was necessary to shorten the hours of work besides making many provisions for personal comfort and convenience that never would have been thought of in the case of men, even by the most theoretical philanthropists.

The establishment of a centralized bureau for the registration and direction of women as proposed by the government, would enable us to place them where most needed, in the same manner that Great Britain did. During 1914 the number of women who obtained employment through the employment exchanges alone was 33,000; in 1915 the number increased to 53,000 and in 1916 to 160,000. These figures merely indicate a transference of labor from one village to the next, or from one district of London to another, and at the present time the number of women being transferred away from home, through the employment exchanges to work at a distance, amounts to between four and five thousand a month. This illustrates the increasing mobility of women's labor, due to war conditions.

In the early days of the war, the women thrown out of employment

in pottery districts were moved to silk mills in neighboring towns, and cotton operatives and carpet weavers were transferred to the Yorkshire Woolen Mills, and tailoresses from Cambridge, Cardiff, Belfast and elsewhere were imported into Leeds for work in the local clothing factories on army uniforms. In the West Midlands district alone, where before the war the migration of industrial women was practically unknown, over 4,000 were, in 1915, placed by employment exchanges in employment, away from their own districts. In the majority of cases the occupations were entirely new to the workers who were drawn from diverse occupations. During the summer of 1916, partly as the result of a specially organized scheme for vocational land workers, over 1,200 women were moved to rural areas for fruit picking, harvesting and other seasonal work; this in addition to the very large numbers who were found permanent employment on the land.

Special propagandist campaigns have been undertaken, appealing to unoccupied women in non-industrial areas, remote from the center where their labor is required. As a general result, the employment exchange authorities are able to guarantee that no woman is sent forward for employment away from home, without suitable arrangements having been made as to reception and transit at the other end, lodging or hotel accommodation, and general welfare. Women submitted for work in national factories have to pass a medical test before they leave home, and in all cases before proceeding on their journey are fully informed as to the conditions of employment, details of the journey, the address of the exchange at the other end, and the nature and approximate cost of the lodging accommodation available.

The experience of the last three years has shown beyond question that women are capable of doing efficiently a large proportion of the work heretofore performed by men. The problem that confronts us today is how best to utilize the women workers and to what extent we can employ them. With the growing scarcity of labor, due to the tremendous business expansion, the stoppage of immigration for nearly three years, and the mobilization of men for military service, there is no question but we will be compelled to employ women in place of men to a vastly greater extent than we had ever dreamed of.

Those of you who heard Mr. Magnus W. Alexander speak at the recent meeting of the Chicago Employment Advisers' Club, will recall his statement that if the working day were to be shortened, as some organizations are striving for, it would be necessary to employ some eight million additional workers to care for the present production, without taking into consideration the war, or the natural normal business increase.

Where could such a vast force be obtained? With the entrance of the United States into the war, and the removing from industrial pursuits of hundreds of thousands, if not millions, of men, we must take immediate steps to obtain and train women workers for both office and factory, if we are to handle business as usual, without a serious disturbance in the industrial and financial world. Mr. Alexander told us of the plans formulated by his own company for the establishment of an apprentice system for women, for it had been found by their experiments that women could handle their nine-inch and fourteen-inch lathes as well, if not better, than the men, if pro-

vided with necessary mechanical appliances for lifting and carrying the material.

Other concerns are working along the same line. I recently spent some time with employment men in New York and Philadelphia and found that they were already employing women, breaking them in for various positions so that they would be ready when the time came.

Some time ago Armour and Company began to employ women and place them in training to fill positions in the office, of the men who are now being called out, and by taking steps early we have without doubt prevented serious disturbance, so far as our own office and plant are concerned. Comparatively few business houses have awakened to the seriousness of their position. Only last week one of the largest railway systems in the southwest, not content to issue mail instructions, wired every division agent, superintendent and yard foreman, to proceed immediately to employ women at every point where they could be used so as to prepare them to take up the duties of the men that they knew would be called to the colors.

Probably you have noticed in the newspapers, the last few weeks especially, the large number of advertisements for women, many of them in display type, indicating an awakening sense of the danger with which we are confronted. There are hundreds of thousands of women, like the men, who have utterly failed to grasp the seriousness of the struggle in which we are engaged, and who do not realize, even to the slightest extent, the effort that we will be compelled to put forth and the intense mobilization of all resources required. But, we must ever keep before us the fact that it is necessary to create a state of mind among the women, which will make them see the necessity for concerted and centralized effort, or we will never accomplish the purpose in view.

Let us not delude ourselves with the idea that our present industrial difficulties are to change in the near future; they will undoubtedly grow worse before they grow better. With the almost positive knowledge that this war will last several years longer, and that it is extremely doubtful if European governments will permit their men to emigrate to this country for a number of years after the war ends, we must make up our mind that the conditions under which we have operated heretofore have gone possibly forever, and that we must adapt ourselves to the changed conditions immediately.

CHAIRMAN SEGUR: I am going to say for the next speaker he has my hearty co-operation and support. I have been for sometime in Chicago studying conditions that exist here. My studies have taken me to the various laboring sections here, where I know conditions, and I know the conditions are far less due to any lack of income than to a lack of knowledge of how to spend that income, and that the inefficiency that we have here in Chicago in many of our factories is due just to the things that I expect Mr. Stauffer is going to talk about. But nevertheless, I am more or less reminded of a little thing that happened sometime ago, at least they say it happened, that Mrs. O'Leary asked Mrs. Mulligan what she thought of dress reform and Mrs. Mulligan said: "Sure, it is a great thing. I just

reformed the old man's pants to fit Johnny, and it worked out fine." (Laughter.)

I think that perhaps this war is going to reform some big problems. I take great pleasure in introducing Mr. Stauffer of the Fox River Efficiency League, who will speak on "Prohibition as a War Measure." (Applause.)

MR. STAUFFER: Mr. President, fellow promoters of efficiency: It is my business to combat alcoholic exhibitions in Wisconsin, a somewhat moist state. I lived in Milwaukee for six years, and probably you have not all heard the story I am going to tell you about Milwaukee. This is the story: A stranger, probably from Chicago, walked into one of our big stores one day and was looking around the book display, and not seeing what he wanted to see, asked the clerk whether he did not have Shakespeare here, and the clerk said, "I don't know." He turned to the proprietor of the institution, an old German, and asked him, and he said, "No, we don't get Shakespeare here. We have Schlitz beer, we have Pabst beer. We have Gump's beer. But we don't get Shakespeare." (Laughter.)

PROHIBITION A WAR MEASURE.

New occasions teach new duties. The emergency we are facing makes the problem of producing an adequate food supply and conserving it the burning issue of the hour.

Congress has wrestled with the question of prohibition during the war, and decided to put the proposition up to the President. The President has handed it to the newly appointed food dictator, Mr. Herbert C. Hoover.

The manufacture and sale of all alcoholic beverages during the war should be immediately prohibited for the following reasons: I—Such order would save the grain now wasted by the breweries and distilleries. Last year about 108,000,000 bushels of grain of all kinds were thus used, which would feed seven millions of people one year—a number equal to the combined populations of Wisconsin, Michigan, and Indiana. Dr. Harvey Wiley, formerly Federal food expert, has estimated that the grain now annually wasted for liquor would feed the entire population of the United States for one month. The brewers' reply to this proposition is, that barley is not a food for man, and that after it has been malted it makes a profitable feed for cattle. Moreover, they assert that beer is a valuable food.

My answer to them is (a)—Stop the conversion of barley into booze, so that farmers will sow the land now used in growing barley to wheat or corn instead. (b)—Beer is not a food in the ordinary sense. It contains from $3\frac{1}{2}$ to $4\frac{1}{2}$ per cent of alcohol, which is a food, but also a narcotic poison; and this poison renders it absolutely unsafe as an article of diet.

At first the announcement that there was danger of a food shortage in this country made no impression whatever.

Until recently we have had an unlimited acreage of virgin soil to draw from, and vast prairies on which to graze cattle; but our tillable land is nearly all under cultivation. Even before the war we were beginning to realize that the era of cheap wheat and meat had forever passed.

Suddenly we are brought fact to face with the fact that the situation is

really serious. Careless farming must cease. Our shamefully wasteful habits must give way to habits of economy in the use of food.

The situation is made doubly acute by three years of war, which have resulted in the withdrawal of millions of men in Europe from productive work. Hundreds of vessels carrying food supplies have been sunk. Added to this is the fact that last year the wheat shortage was 360,000,000 bushels. This year it will probably be but three-fourths of a normal crop.

Mr. J. Ogden Armour, a recognized authority on this subject, has put the case none too strongly when he said: "In my opinion, the most serious question before the country today has to do with producing and conserving food for next winter, and with laying the foundations for a food supply for the next few years to come. Not only a hundred million Americans, but many millions of Europeans are looking to us for bread and meat to hold their bodies and souls together. If we fail, terrible suffering stares America and Europe in the face. Nothing but unusually large crops of every variety and the most careful distribution and use of them will take us through the winter months without widespread suffering."

In view of these startling facts the further wasting of grain for that which does not nourish is criminal shortsightedness and folly.

II—Immediate Federal prohibition would release the 81,000 men now engaged in the brewing and distilling business and put them to the reputable task of raising food instead of raising cane! There are in the United States 289,000 saloonkeepers, brewers and distillers, according to Dr. Irving Fisher of Yale.

The war has produced a very unusual condition of the labor market.

(a)—Normal immigration, sometimes reaching one million a year, has stopped.

(b)—Great numbers of foreigners have returned to Europe to take up arms.

(c)—An army is being mobilized, which means the withdrawal of the most virile of our population from productive pursuits. From every quarter is heard the call for men. Many of the manufacturers in Milwaukee are short 200 men, and are ready, in their distress, to hire almost anyone who presents himself. In view of this abnormal condition it is high time to set every able-bodied man and woman to such work as will supply the real necessities of life.

III—Prohibition will insure the maximum efficiency of the workers at home and the recruits at the training camps. This is of the utmost urgency. The motive to 100 per cent efficiency was never as strong as today. Every man who has a spark of patriotism must promptly respond to this demand. We must win a decisive victory at the earliest possible hour. In order to attain this end the men in khaki and the men in blue will be denied the use of alcoholic liquors of all kinds. In view of this fact it is the height of meanness and ingratitude for those who remain at home to raise food and make munitions of war for our soldiers to insist on indulging their appetites for booze. I do not believe the American people will be guilty of such baseness.

To prolong this awful tragedy needlessly for a single day would be a crime for which our language contains no adequate word. But let us squarely face the fact that tardiness in the manufacture of munitions of war and ships

for carrying them and food to the Allies, or a shortage of grain here, will certainly postpone the day of victory.

Finally, Federal prohibition should be immediately initiated, and strictly enforced for the reason that the adoption of such policy will result in the solution of our most urgent social problem—the elimination of the drink habit; (c)—with all its personal and social consequences.

The psychological moment has come to urge this matter with the utmost persistence. In this crucial hour of our history, we must be 100 per cent efficient; and because we MUST, we CAN. But this means abstinence from all that intoxicates.

Even partially enforced prohibition in the dry states has produced the most gratifying results. The Governors of dry states and the mayors of dry cities freely testify to the effect that prohibition has brought none of the ills predicted, but has brought increased material prosperity, greater industrial efficiency on the part of the working men, fewer accidents and a decrease in prostitution and crimes of all sorts, ranging from 50 to 90 per cent.

In view of the nature of alcohol the results could not be otherwise. Being a narcotic poison it paralyzes the brain and nerves. And the heart of the tragedy of alcohol is the fact that almost immediately after being taken into the stomach it strikes the moral center of the brain, partially paralyzing those nerve cells through which conscience functions. The immediate effect is blunted moral sensibilities—a condition which predisposes the user of alcohol to every form of vice and crime. The man who drinks even a **little**, is partially intoxicated, i. e., poisoned. Therefore his senses are less keen than those of the abstainer. He is deficient in perception and memory. His nerves are unsteady. Hence, accidents; and hence, the muscles are not equal to hard labor. These facts are all well known to all who have studied the effects of alcohol. It is evident, therefore, that actual prohibition enforced for one year in the U. S. would bring in such an era of economic prosperity, good health, industrial efficiency and moral betterment as would insure the continuation of that policy for all coming time.

That which it has been impossible to gain by argument and persuasion may now be gained by a single stroke under the grim necessity of war.

The solution of every other urgent social problem of the day must be postponed till we have the moral stamina and courage to solve the booze problem in the only way it can be solved, i. e., by the radical way of universal abstinence and national prohibition. For, abstinence may save the individual, but nothing short of prohibition can save society.

We deplore the fact that the vast wealth of our country is not more evenly distributed; and we know only too well that the growth of the slum population of our great cities bodes ill for the future. But there will be no solution of this problem, so long as the government licenses a subtle poison that impairs the earning power of the working man, and makes him morally incompetent to use to his best advantage the money which he earns by hard labor. And alcohol is just as bad for the brain that is charged with the responsibility of management as it is for the brain of the working man. When the history of the labor troubles of this country shall be impartially written, it will be necessary for someone to say that the paralyzing, brutal-

izing effect of alcohol on employer and employee was largely responsible in many cases. And this is true because the only lasting basis of industrial peace is justice and the spirit of brotherhood and co-operation between the employer and the employee. And a fine, clear sense of justice and large-mindedness are impossible in the case of brains that are partly paralyzed.

The root of the child labor problem is the booze-drinking of the child's father. While crime is gradually decreasing throughout the civilized world, in this country it has steadily increased in the last 50 years.

The first step in the solution of the problem of crime must be to quit making and selling beverages which paralyze the moral center of the brain.

Thus it will be seen that alcohol is the root of these outstanding problems which challenge the noblest intellects and the finest spirits of our time. What has been said of these, is also true of the housing problem, the divorce problem, the safety first problem, and the problem presented by the social evil. Not one of them can be solved as long as the present drinking customs prevail; for, booze is the root of the trouble in each case. In fact, booze is the prince of all the modern evils that trouble us. Cast him out, and all the lesser brood will flee with him. Give him place, and vain will be all our laborious efforts at reform. The demand of the hour is for a patriotism radical enough to go to the root of our troubles.

Morality is absolutely essential to preparedness, and industrial and military efficiency. Booze, tobacco and venereal disease are sapping the life of a vast number of the young men of military age. My only reason for stating this disagreeable fact is because of the very close relation there is between the use of alcohol and sexual immorality. Many of our young men are wholly unfit for the best service in the shop or on the field, because, after paralyzing their brains with booze, and thus blunting their moral sense, they found it impossible to control the sexual impulse. The chaplain of one of our Wisconsin regiments, which served on the Mexican border last year, says that three out of five of the soldiers under his charge came home with some form of venereal disease. A moment's reflection on the tragedies which will inevitably follow the return of these men to civil life gives one pause. On their return from the east the crusaders brought with them the dreadful disease syphilis, which spread all over Europe, and which for a time threatened to destroy Western civilization.

For the young men on whom the destiny of the nations at war rests, the only way of safety, health and efficiency is total abstinence from all that intoxicates. And I do not think it fair or honorable to force on them a severer standard of self-denial than we ourselves are willing to adopt. Prohibition will make it easier for all men, whether at home or at the front, to be clean and efficient.

And if, as a result of the war, we shall be compelled to adopt nationwide prohibition, the beneficial economic and moral effects will be so vast and far-reaching as to justify the awful tragedy which is darkening the world at this very hour.

The hour of destiny is at hand. Let us strike a well-aimed blow at the chief evil of modern society. Let us strike now, and let us strike hard for national prohibition as the only adequate remedy for a national evil!

CHAIRMAN SEGUR: In introducing the next speaker I want to say that I have obtained a great deal in what little I have been enabled to do from Mr. Gilbreth's work and what he has written. I believe I got my first ideas on standards from Mr. Gilbreth's books. I think probably there are other men here in the audience who have had the same experience. I have heard Mr. Gilbreth speak many times and I think we all of us know there is something good coming.

Mr. Gilbreth, the program states, will talk on "Measurement and Standardization," but this address he has had printed and copies will be distributed. However, we are to have the pleasure of seeing some of Mr. Gilbreth's micro-motion pictures, and as these will be more interesting than anything I could say I will call on him.

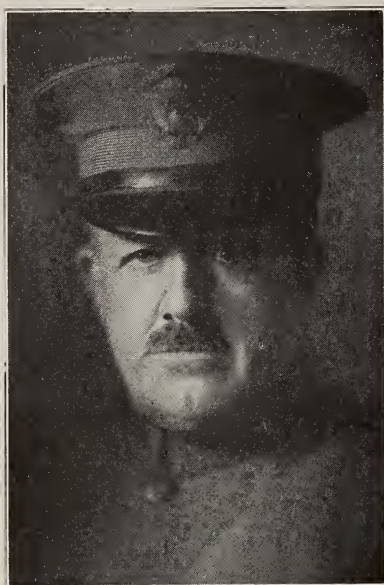
MR. FRANK B. GILBRETH: While they are making the room dark I want to contribute a little something which will make my friend Adams laugh himself to death and Harrington Emerson get up and go downstairs, and a few other things like that. (Laughter.) I want to tell you that this work which my friend Harold Gould called long haired, and it was not denied by Dean Hotchkiss,—that this work of mine, if it has not done anything else, has done one thing that will please the previous speaker, and that is that it has proved that booze is the biggest enemy we have got from A to Z.

There is not any kind of booze in the world that I don't like. (Laughter.) I do not believe there ever has been any kind of booze made, and I do not believe there ever will be any kind of booze made that I do not like. (Laughter.) As a friend has said a few minutes ago, I wish I had a drink right now. (Laughter.)

And in spite of that fact, I have cut out booze, and every time I see a man drink it makes my mouth water. (Laughter.) I do not know whether I will be able to stick it out or not. It does not seem to get any easier for me as time goes on. Incidentally, it does not get any harder for me, but we have been making measurements in our various laboratories, of which we have nearly a dozen in this country at the present time, that have given us some interesting information on its by-products, and information that we never expected in the world we were going to get. The fact that you can actually see the difference in the kind of motions and the decisions that are made by the man who boozes just a little and the man that does not booze at all.

Now, looking at my carcass, consisting of almost an eighth of a ton, as a machine I cannot afford to have any alcohol in it, until financial conditions change, at least. (Laughter.) There is a new one for Mr. Prohibitionist. I have been anti-prohibition all my life. It always seemed wrong to me to have another man tell me whether or not I could have a drink, and finally I got to the point that the long life in Germany made me believe that light wines and light beers do not do any harm, and so I thought that the prohibitionists should compromise; but I am becoming an uncompromising prohibitionist. (Applause.) Stop it. I see you boozers down there applauding. (Laughter.)

Now, you have not a right to do that. Cut that out. You are doing that for some of the gang here. Now, go get a record and reputation like mine before you do that. (Laughter.)



MAJOR FRANK B. GILBRETH

I candidly and truly believe that the evidence we have got today on this motion study is a brand new contribution to the question of booze; and I am not going to talk about booze any more. This is the first time I ever mentioned it to anybody, except in groups of one at a time. (Laughter.)

Now, getting down to this talk of mine; I do not know whether I am a good fellow this afternoon or not. Many things will come up in a somewhat disconnected way in this talk of mine, because my program has been changed. I have got a paper here. I thought it was all off, because if I could not come at the last minute somebody would read it, and if I did come I would stand up and read it, and my troubles would be all over. But talking with the high-brow committee of the Western Efficiency Society today, they suggested I cut out the paper and give another talk, and consequently my talk has been a little bit disconnected, because Harold Gould, while I was arranging some lantern slides in my trunks, came up, and I did not have time to arrange them. If the Western Efficiency Society had been efficient they would have saved me from hearing the uninteresting papers preceding me and I could have arranged my slides properly. (Applause.)

The Western Efficiency Society, consisting as it does of perhaps the largest executives in the country, makes it more important than ever that we think over what we are going to do in this crisis that confronts us at the present time. I have crossed Germany a half dozen times since the war began, and I believe I have been in nine different countries over there, some of them several times. And consequently being prepared to talk over the subject particularly of furnishing the grub and the munitions and the necessary transportation of the man behind the gun, being equipped to talk about that subject quite as well and probably a little bit better than any army or government officer that you can get, it seems to me that perhaps you can forgive me for having a disconnected talk, because I have got some things here that may start you thinking, even though they may not make a complete solution of the problem of what a civilian can do, what a manager can do, what an engineer can do, what an industrial commercial man can do, to help out the situation that confronts us in this country today.

I have been in Washington three days since the war was declared. I have had a talk with a great many officials down there, and I have just come from several meetings in Cincinnati, from joint sessions of the American Society of Mechanical Engineers and the National Association of Tool Builders, and these subjects have come to me and they have been talked over in these various places that I have been in.

Now, I am going to show you some pictures, some of which are absolutely new and some of which are quite old, but I do not hesitate to show you these old ones for the third time, for the reason I have not seen an expression of human intelligence on any man in Chicago that I have shown these pictures to up to date,—I refer particularly to Harold Gould and my friend Berndt. (Laughter.) Harold Gould says the scheme is long-haired. Any kind of hair sounds good to me in my old age. Consequently, we won't argue. (Laughter and applause.)

Mr. Gilbreth then showed a number of stereopticon views and micro-motion pictures and gave an explanatory talk with each. All the lights in the

room being turned out, it was impossible for the reporter to take notes of Mr. Gilbreth's remarks.

The paper specially prepared by Mr. Gilbreth for this conference follows:

"MEASUREMENT AND STANDARDIZATION."

No definite and permanent advance is made in any kind of work, whether with materials or men, until use is made of **measurement**. This is especially true of advancement of the human factor in industry, which varies so much that unless we use measurement and abide by the results, there is no possibility of repeating the process accurately and efficiently at will, or of predicting and controlling the future conditions that assure that advancement.

The first step in any great movement is to do exactly what this Society is doing at this Conference—to arouse interest in the subject, to discuss the great problems involved, to outline the possible solutions, and to assign the various problems to those best fitted to undertake and handle them.

The next step is to realize that all this discussion, valuable as it is, can grow into such action as it deserves, only if measurement is insisted upon from the very beginning of making the investigations outlined, if the records of measurement are in such form that they can be used by those who did not make them, that skill and experience may thus be transferred, and if the results of the measurements are incorporated into actual and universal practice as soon as they are properly synthesized into practical methods of least waste.

The world has come to realize the truth of this as applied to material things. The day of standardization of materials and of machines is far advanced, and is daily progressing; but such has been rarely the case with measurement as applied to the human element.

The design of machines is constantly changing; the human being is constant. Measurement on machines that are obsolete is of little value. Measurement of human beings is valuable forever. Such old saws as "Genius must be unconfined and uncriticised," "Skill is not a matter of measurement or of teaching, but of natural aptitude alone," "Experience is the same as efficiency and the expert often develops as a lone workers and with no thanks to measurement," have stood in the way of measurement. So have such ideas as that measurement of the human factor, and the supplying of work that this measurement shows to be the most appropriate, lead to monotony.

Now it is a matter of no difficulty to state the facts in their proper terms to an unprejudiced and open mind. Measured investigations prove that genius develops best and fastest when provided with such opportunities as measurement of the genius show as necessary, and when relieved of all restrictive occupation and distraction. They also show that skill is largely a matter of training, and that greatest skill can be acquired in the shortest amount of time when right habits are acquired as a direct result of right methods having been taught from the start, and the human factor in the learner and the teacher having been carefully measured.

Most interesting of all, perhaps, is that recent investigations prove absolutely that while expertness and efficiency may be possessed by the same indi-

vidual, often the expert is not an efficient worker. One of the most expert and most successful orthodontists in the country was proved by motion study measurement to be most wasteful of her motions and her strength. Many an expert worker in the industries, in the professions and in the sports shows every evidence of working with speed and with a resulting output high in quality and quantity, but with a resultant fatigue entirely incommensurate with real efficiency. This is no mere theory of ours, not something that we merely base on "what might be" or "what could be," or "what we believe is." It is the actual condition of affairs as we can prove by records made on recognized experts and champions in numerous lines of activity.

As for the idea that measurement leads, directly or indirectly, to monotony—it has been the direct results of measurement that have proved to be the great factors in eliminating monotony, and in injecting interest into all kinds of work.

Monotony is the result not of measuring the activity, or the human factor in the activity, but of wrong assignment and placement to work, or of such repetition of work that the mind is forced to follow a cycle of activity again and again, with nothing to stimulate during the process. It is the measurement that has resulted in better placement, and in assigning each individual to that type of work for which he will become best fitted and that he finds interesting. It is the measurement, and the theory and practice of measurement that is taught the individual at the work, that makes him interested in the work itself, in his motions in performing it, and in the rest intervals that enable him to perform the most output with the least fatigue.

How are these measurements made? Through advances in laboratory psychology, through educational psychology and through advances in laboratory practice in the industries, it is now possible to record, accurately and in great detail, not only what the activity is, its elementary and over all times, and the paths through which it moves, but also the results. Progress might be greatly accelerated by closer co-operation between workers in various lines all interested in the same problems, though often they fail to realize this fact. Physiologists, psychologists, industrial engineers, managers, and other experts are all interested in so many of the same problems as to astound anyone who understands the various problems, and can compare the investigations in comparative activity now being made. Yet many of the most prominent workers in all these lines, not to speak of the world at large, fail absolutely to realize that the problems being considered are common to all and that the results could be of use to the world very much quicker if there was more close co-operation during the period of investigation. Methods and devices could easily be transferred from one type of laboratory to another, findings could be correlated and results classified and utilized to an extent scarcely dreamed of today.

As for the methods and devices in use in industrial investigations in particular, we have already presented to you on previous occasions data concerning some of those that we use and have found most helpful. It remains but to say here that these are at the disposal of the nation in this emergency, and have been placed by us already at the national service.

In order to illustrate and to make more concrete the need of measurement in considering the human factor, we bring to you today especially and

as one typical example of the whole the problem of the cripple—the war cripple and the industrial cripple—both of whom constitute elements seriously to be considered in the great problem of preparedness.

Ever since various visits to the warring countries, particularly after the war, and an intensive consideration and study of the problem of the crippled soldier, we have put all possible time, with no remuneration, to the consideration of the problem of re-educating and utilizing the crippled soldier and the crippled worker of the industries.

We realize fully that this is not the time to bring the problem of the war cripples before the youth of the nation in such harrowing form as to prevent enlisting, or in anywise diminish the militant spirit that must exist if our national plans are to be successfully carried through. We realize also, however, that if this country is to succeed better than did the countries abroad in handling this problem, it must be seriously considered **immediately** by such bodies of mature men as this Society. No one realizes more strongly than do the workers in the re-education of the cripples abroad, the need of our nation preparing a Bureau or Department along this line. We had, only a few days ago, a letter from Professor Jules Amar, the great French scientist, who is devoting his time and resources to this work, who has government backing and the most marvelous equipment, and with whom we have been co-operating in crippled soldier work for some time. In this letter Professor Amar urges that this country prepare itself not only along military lines, but along all other lines, for the proper handling of its soldiers. And the French have succeeded in this line with their remarkable ingenuity far beyond any other nation.

We have a well-defined purpose in bringing this subject to the attention of this meeting, which will be brought out plainly at the conclusion of my paper. Let us here outline the things that have happened abroad and in Canada because there has not been sufficient attention paid to measurement of the human factor, and sufficient preparedness to handle the problems that have arisen.

In the first place, there was a universal lack of realization of the great difference existing among the cripples, and of the need of placing each man in that work not only that he was best fitted to do, but that he would most enjoy doing, and that would arouse and hold his interest most successfully and permanently. In the second place, there was a lack of realization of the many more opportunities available for cripples than had been realized. In the third place, there was a lack of realization of the necessity of supplying the proper and fitting re-education for the productive output at the earliest possible moment, in order to bridge over the period of discouragement and despondency, and help the cripple to fit back into the economic world and its work.

In the fourth place, there was a failure to impress upon the cripple, from the earliest possible moment, his **likeness** to other people and to other workers, rather than his **differences**, and, therefore, as a result, a failure to provide for that **social** element in the work that is necessary, if his permanent happiness is to result. In the fifth place, there was a failure to educate the general community as to what their attitude towards the cripple should be. It is

along all these five lines that this preparation must take place, and every one of these lines demands the most accurate measurement of the human factors involved.

First, then, the lack of realization of the difference between individual cripples lead in many instances to teaching them all the same kind of work. This was especially the case where the unfortunate choice was made not of work that was suitable, but of work that was easily taught, or worse yet, work that the available teacher happened to be able to teach. The mistake here was a particularly sad one, in that often this line of work was one that could not possibly appeal to anyone of a group of real men who had left real work in the industries or professions to go into the most strenuous of all activities at the front. It was unfortunate, also, that after the cripple had been taught, he was not in a position to look at his new work as a sporting proposition nor to earn an adequate living, nor was he at all satisfied to work permanently at the new work in which he had been most painstakingly taught. For example, many red-blooded men were seriously taught to make baskets, wonderful baskets, that all possible customers could easily go without, that were expected to be sold to people who bought the baskets through pity to help the makers, instead of as a commercial proposition (even our Indians have abandoned basket making because it is not sufficiently profitable). Most men of the type who have the spirit to fight for their country might be expected to work on baskets so long as they have attractive and interesting teachers, but when taught a trade requiring the variable of charity to be present at a sale of the product, would prefer, in the long run, to drown their sorrows in the standard manner. It must be remembered, then, that it is necessary to find a man's job for these red-blooded individuals, who, with the new opportunities, will be as strenuous in their determination as when they charged the enemies' trenches.

In some cases it is possible to assign a man to work which he has done before he had been injured, and to adapt the working equipment in such a way that he can make a satisfactory output at the work. In many cases it is possible to "re-educate" the man to do a type of work higher than any he has ever done. We have never, as yet, found a case where it was necessary to assign any man to work that could not be made interesting, stimulating and profitable.

The "mental" workers present the simplest problem. The "manual" workers of some education are also easily handled. The difficult element to handle consists of those who have never had the benefit of education—the illiterates. But surprising results have been obtained in all countries, even among this class, where the individual to be placed has been studied with sufficient care. It goes without saying that the nature of the injury or maiming must be carefully studied, also, and that this, along with the study of the mental training, and most especially **the ability to learn**, must be considered in the placement.

Second, as to the lack of realization of opportunities for cripples. In considering the cripple as a subject for placement, we must remember that there are many variables involved. There are the variables of the physical capabilities of the cripple himself, and of the possibilities of supplementing

such limbs and faculties as he still possesses with such mechanical devices as are used so successfully by Professor Amar. The most rapid survey of the illustrations of any of the several wonderful accounts of the work being done by him, show that he has carried mechanical adaptation and supplementing of the capacities of the cripple to a truly marvelous extent.

Another variable is the amount of adaptation possible with the working equipment that the cripple is to use. We have already given an account of the possibilities of adapting the typewriter through the use of a double keyboard, of a supply of paper from continuous multiple rolls and other devices furnished us by the Remington, the Monarch and the Smith Premier Typewriter Companies, to the use of the crippled typist.* Another variable is the possibility of re-education, mental and manual, of the cripple himself. Along with existing, realized and unrealized, opportunities for the cripple are others that result from the creation of lines of activity not yet existing, but much needed for the community good, such as that of Dental Nursing. This we have already described,** and need only say here that it consists of taking from the unfunctionalized over-burdened profession of Dentistry the routine work of cleaning the teeth, and assigning this to properly trained and inspected cripples, who will, under State supervision and after the instruction of experts, supplement the work of the dentist, add to the health and well-being of the community, and at the same time furnish dental prophylaxis at a price that the poor family can afford.

It is along this line that we make our first plea to you for co-operation in finding jobs specially adapted to cripples. In your own particular occupation, no matter what it is, there undoubtedly exist opportunities for cripples, both discovered and undiscovered, and it is a part of your duty to your nation, and of your contribution to adequate preparedness, that you yourself discover these opportunities, record them and present them for national consideration. If you have a successful cripple in your employ, if you know a cripple who is a productive member of the community, his occupation must be one suitable for some other man crippled similarly, and it is your duty to record all existing data as fully as possible along such lines, noting particularly how he has achieved economic and industrial success, that others may be cheered and encouraged particularly during their transition periods. If you note in your observation of your own activity, or your own line of work, any places that could be filled by cripples of any possible type, it is your duty to record these also.

Of course, with the Simultaneous Motion Cycle Chart*** it is possible to take almost any line of activity and study it and adapt it in such a way as to place a crippled worker at least a part of the activity. But there is one way in which your observations will have more value than will those made through the laboratory methods, i. e., the great immediate need of the man who has been crippled, after he has been made physically comfortable, is for

*"How to Put the Crippled Soldier on the Pay Roll." Presented at the Economic Psychology Association. Columbia University, New York.

** "The Conservation of the World's Teeth: A New Occupation for Crippled Soldiers." Conference Society for the Promotion of Occupational Therapy, March, 1917.

***Motion Study for the Crippled Soldiers." American Society of Mechanical Engineers 1915.

encouragement and comfort. This can be obtained quickest through accounts of actual existing men who have suffered similar injuries and who have made good. If you will record these for his use in the most simple and elementary fashion, the human element there will at once make itself felt in the encouragement and heartening of the newly made cripple.

Third, you must realize the great need of supplying this incentive to live and this re-education at the **earliest possible moment**. Mr. George E. Barton, Director of the Consolation House in Clifton Springs, New York, who has had a long, most interesting and valuable experience with cripples, with maimed, and with convalescents of all kinds, agrees with us that the crucial period is at the earliest possible moment in the convalescence.* With the war cripples a serious complication occurs here if this stimulus is not at once supplied. In the case of those of much education and training, if there is no stimulus at this time, despair and direful consequences are more than apt to occur. If the man has not much education or constructive imagination, and the period of re-education is postponed—between the money that he receives without effort, and the misdirected sympathy of his friends, he is apt to fall into habits of idleness, if not worse, that are extremely difficult to overcome later. This is universally acknowledged by those both abroad and in this country who have worked with cripples.

Speaking of the money, or the pensions, it must be understood that nothing that we say in any way contemplates doing away with pensions. We agree with all those who sympathize with the cripples that they deserve—having “done their bit”—the thanks and reward of their country, and an opportunity to rest, if they so desire and if this is possible. However, the majority of them do **not** desire to remain idle, and it is necessary, for their own good as well as the good of the country, that they be allowed to supplement these pensions by all that they can earn and yet remain physically and mentally at their best.

It is necessary at this time to realize, also, that ability to supply this need when it arises depends largely upon our being prepared well in advance of the immediate need. On returning from two trips abroad after an extensive study of conditions there, and strenuously advocating general preparedness for our nation, we were laughed at as mad and foolish for thinking that this country would be involved in the great tumult abroad. Now, when we again advocate as warmly and as persistently preparing for this crippled soldier problem, we are again told, even in Washington, that we are “in advance of the times” and that “there is no need for haste in this matter.” We wish to impress upon this Society most strongly, at this particular point, the need, if we are to conserve the best there is in our returning men, mentally and physically, of preparing for their reception and their re-education at once.

To consider fourth the need for a social element in the work. Too much of the work assigned to and taught to cripples carries the inference that they will work either as “lone workers,” in their homes, or in communities of cripples like themselves. Now, we all know there is no punishment like ostracism, there is nothing that troubles the average human being like being considered different from his fellows. We must make the cripple feel, from the earliest possible moment, that, in essentials, he is like every other

*See papers by George Edward Barton, Clifton Springs, New York.

member of the community, and that the quicker he "fits back" into the social and industrial life of the community, the better for the community as well as for his own self.

It is, therefore, with particular pleasure that we see some of the newer opportunities for cripples that are being discovered. We are glad to acknowledge here the hearty co-operation of the National Cash Register Company in discovering and recording such opportunities. There are opportunities in stores, opportunities for handling vending machines, for selling tobacco, papers, periodicals, candy, souvenir postcards; for tending and operating telephones and telegraphs, telautographs, cash registers, credit files, dictaphones and circulating libraries; opportunities for selling booths in hotel corridors; opportunities in small stores, and as ticket sellers and choppers in subway stations. When you realize what these opportunities are, and the broad field in which they lie, you will discover numerous opportunities in your own organizations, and can co-operate and assist us in bringing these to national attention. The great benefit of all of these opportunities is that utilizing them for cripples will not only free people for other lines of activity that demand "whole" workers, but that the cripples will enjoy social life as well as opportunities for productive work for the community.

Of course some suggested occupations will require the usual changes or adaptations. For example, an elevator operator's job requires no legs if the man be supplied with a stool. This is perfectly practicable in this country where there are no such ceremonies on entering and leaving a lift as exist abroad.

This leads us naturally to the fifth topic, the need of educating the public. Whenever we suggest a line of work—for example, Dental Nursing—as well adapted to the work of cripples, we are sure to hear the objection, that "the public does not wish to be brought into such close contact with the cripple." It "will never stand for that." Now the public must be educated, at the earliest possible moment, to the realization that the cripple is already an unrecognized large portion of the community, as can be easily realized by noting the large number of factories devoted exclusively to the manufacture of artificial limbs, and is destined to become a large portion, as long as the war lasts and even after that, until we do away, as is possible to a greater extent, with industrial accidents. It is this feeling toward the cripple, which probably started in natural sympathy, and a desire to spare the cripple activity, that has resulted in making the average cripple feel that he is different from the other members of the community, and estranged from them, and it is this feeling that we must combat at the earliest and at every possible opportunity.

The pity for the cripple under the proper system of education should be supplemented by great admiration for the courage and expertness of the cripple, and by a desire to co-operate in making him a productive and a more satisfied member of the community. Again, the public must be educated as to the necessity of providing a definite livelihood for the cripple. It is not enough that we give the cripple a **chance** to earn a living, we must be sure that he **gets** the living. It is not enough to give him a "fair chance with other competitors," for he may not have been trained to meet the lifelong

training of unhandicapped experts. It will be especially easy to emphasize the possibilities of giving and insuring this living to the cripples who are placed in these new types of little stores. This can be done, first, by sending the customers to him; next, by notifying all possible customers **who** and **where** he is; the "where" being taken care of by special signs on the street, such as druggists' signs in certain countries abroad; third, by notifying customers what he is; fourth, by providing such state or community controlled societies acting as jobbers for cripples who are comparatively small buyers who can handle small orders for the cripple, handle credits and take away the voucher of "deserving cripple in good standing," or "military cripple in good standing." These jobbers will afford us an opportunity of guiding the distribution, purchasing and selling expense of those who are handicapped as original producers, and help to turn the necessary unproductive expense due to distribution marketing and service over to those who are handicapped.

Again, the public must be educated to a feeling that after certain jobs have been designated as suitable for cripples they should, as soon as there are cripples to fill them, be reserved for these cripples. It should become at least "not fashionable" to do any work that can be done by a maimed man, nor to employ a whole worker in a job that can be properly handled by a cripple out of employment.

This readjustment is no new thing, nor is it one demanded only by the situation with regard to cripples. We have for years advocated the reclassification of the trades. This reclassification has always been needed. It happens that this new element in the problem, or rather the increased importance of this element at this time, makes the need for such reclassification and reassignment all the more important.

These, then, are the various factors of the cripple problem as they exemplify the need for measurement of the human factor, and we bring them before this Society at this time because your co-operation is so necessary. Experts as you are, each in his particular line, each of you is making at this time a fight for measurement, for standardization, and for adequate preparedness. We urge you not only to continue this good fight, and to advocate that measurement be applied to all lines, but we urge you to consider this necessity of measurement as applied to the placement of the cripple as an excellent starting point.

The war cripple holds human interest today, anything that has to do with him grips the sympathies, and where the sympathies are once aroused, results will certainly follow, if we but persevere sufficiently. Now, there are two by-products to this, each of which is greater than the aforestated direct product.

1. The industrial cripples are much more numerous than the war cripples. This has always been so, and is true even in Canada today. Let us therefore take advantage of the present interest and enthusiasm to handle the problem of the industrial cripple whom we will have with us always.

2. The study of the special problems of the cripple, his capabilities for highest placement and success, his special and motion study education and guidance are better adapted to solve the problems of vocational guidance, placement, education and individual efficiency of the youth and workers of

our country than all other known sources combined. This is particularly well shown by the fact that each of the successful studies that we have completed to enable the crippled to compete with the unmaimed has resulted in information or apparatus or less wasteful motions that have also been correspondingly useful and valuable for the unmaimed.

In other words, the cripples' needs are immediate. In serving him we are at the same time collecting the most valuable motion study data, and data relating to educational and industrial methods of least waste. This is a National need that one can realize better after talking with a keen observer who has recently returned from foreign travel, particularly from the far East.

Will you not therefore, in your consideration for, and in your work along the lines of the Human Factor in Industrial Preparedness, and in your advocacy of measurement along these lines, consider in your own particular work the military and industrial cripples, present and future, who need the results of this work so sorely, and co-operate, not only in finding opportunities for the individual, but in educating the great public with whom you come in contact as to the needs, and also to the remedies for these needs? By so doing you will add to the productivity and wealth of our country and to the great sum total of the happiness minutes which are the ultimate units that we all aim to produce.

EIGHTH AND CLOSING SESSION

Friday Evening, May 25, 1917.

PRESIDENT KESSLER: The meeting will please come to order.

The Western Efficiency Society considers itself in a very enviable position this evening in having for its Chairman the President of the Chicago Association of Commerce, Mr. O'Leary, who will take charge of the meeting. (Applause.)

MR. JOHN O'LEARY: I was fortunate enough this evening to have dinner with my own family. When I announced I had to leave rather hurriedly, they asked where I was going tonight. I told them to the Western Efficiency Society. And one of them remarked, "Why, you spoke there only a week or two ago." I accepted the rebuke, because I realized they meant they were rather surprised that I should be called on again. (Laughter.)

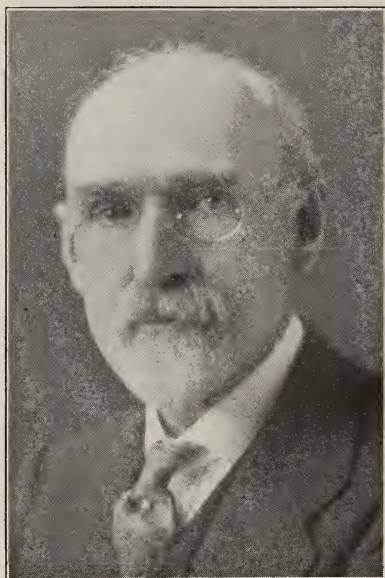
A few years ago, not many in fact, our educational institutions, our colleges more particularly, rather confined themselves or rather specialized in cultural studies. They might be compared to the hot-house conservatory of the wealthy man, where he played with his prize specimen. Of late years, however, there has been a tendency, a very strong tendency, to particularize in rather practical studies, and we have watched with much interest the growth of such particular subjects as engineering and agriculture.

This development has brought the university very much closer to the people, as is clearly evidenced by the large growth in attendance. We thought not many years ago that a thousand students was a large enrollment. Today we find six thousand not uncommon.

The development has not been confined to privately endowed institutions. State universities supported by tax upon the citizens of the state have kept march with the progress of the other universities, indicating a rather warm feeling on the part of the people at large toward our higher educational institutions. The recent legislative program in our own state, in which, added to the large appropriations for operation, they included a program providing for from ten to fifteen millions of dollars to be spent upon engineering schools in the University of Illinois,—it seems rather a big proposition, or would have been a few years ago. Today we accept it as rather common.

Some five years ago, or thereabouts, it was my privilege to attend the first annual meeting of the Chamber of Commerce of the United States. You will remember that that organization was formed to centralize or rather co-ordinate the efforts of the business organizations of the country. President Taft approved the program. Mr. Wheeler of our own city was its first president. And one of the first questions considered by that body was a Federal Trade Commission.

We had been very busy up to that time busting trusts. It had become



C. R. Van Hise

a favored occupation. We found that there was something wrong with the method pursued and we began to think that with a little careful study, a new method of dealing with large business would be discovered and so the first thought of this new commercial body was to consider what might be done to regulate trade rather than to destroy it.

I was interested at that meeting in hearing Dr. Van Hise express some viewpoints which were new to many of us, but which showed that he had been considering the subject very carefully, and on the way home on the train I remember I invited him to speak in Chicago and we had the privilege of hearing him on that subject shortly after.

The University of Wisconsin is almost as close to us as our own state university. We hear of it and think of it almost as much. Many of our students go there. We do value very highly in this community the president of that institution. He is a man who has studied through many years subjects from the standpoint of the university professor, but he has been broad-visioned and has realized that there are other angles than those which come to the university professor alone, and so he has mixed with business men and has studied business institutions and brings to all of us a wealth of knowledge which is difficult to obtain ordinarily.

It is a privilege, and the Western Efficiency Society may indeed be congratulated on having as a speaker on "Governmental Control of Industries in War Times," Dr. Van Hise of the University of Wisconsin. (Applause.)

GOVERNMENTAL CONTROL OF INDUSTRIES.

Address by Charles R. Van Hise, Ph. D.

Ladies and Gentlemen of the Western Efficiency Society: It is a very great pleasure indeed to accept the invitation of your secretary to visit this society and speak upon this subject. I have been interested in the question of efficiency for a great many years, especially in relation to my studies upon coal and iron, and their conservation. I have had a lot of pleasure with the late Mr. Taylor of Philadelphia, visiting some of the establishments in Philadelphia, where his ideas were first introduced.

It is true you have not followed those ideas altogether, they have varied and varied and developed greatly, but his work was pioneer work along the line of organization, as well as pioneer work along the essential discoveries which were necessary for the highest efficiency.

In my interest in the metals, I have visited the various establishments so far as I could over the country, considering this problem of efficiency in relation to the use and production of metals.

But this evening, I do not know that those have been the problems you have been especially considering, but those are the problems in which you are experts and problems in which I am a novice, and therefore, in order to avoid the danger of making mistakes and talking about subjects on which you have a great deal more knowledge than I have, I have picked out one on which, I trust, you have no more knowledge than I have.

We are all familiar with the story of mounting prices. For the most

essential commodities,—food, clothing, iron, steel, coal—there has been a steady movement of enhancing prices. This movement began some years ago and has gone on for some fifteen or twenty years at a very moderate rate, the cumulative effect, however, being great.

However, about two years ago, after the great European war began, the upward movement went on with accelerated speed, and at the end, or from about two years to one year ago, the enhancement of price did not average that of previous years, two or three or five per cent, but varied from ten to twenty-five per cent; and this last year the upward movement has gone skyward at a speed that never before has been approached.

The new conditions have brought great hardships upon the laboring classes and those of moderate means, especially those with fixed salaries. For while wages have advanced among the working men and while salaries have somewhat advanced, they have not kept pace with the rising prices. So while the workman perhaps now gets a dollar and a half where he used to get only a dollar, in that ratio he is worse off, so far as furnishing the essential commodities are concerned to his family, than he was two years ago.

In this country we have depended upon the so-called law of supply and demand to control prices. This has been something of a fetish to us. We found it in all our political economists, that the law of supply and demand would control, and if the demand went up somewhat, the supply would increase and the prices would be kept at moderate amounts.

But, evidently, there has been some trouble with that theory in the last year or two. It is true in normal years the supply and demand are controlling factors, providing they are free, but when the demand is in excess of the supply for every essential article, then the control proves to be wholly inadequate. When we have essential demand exceeding the supply for one article where there is a substitute, we can substitute, and so control somewhat the prices. But when the demand exceeds the supply everywhere for all essential articles, the system breaks down and the prices go skyward.

I may give some illustrations of what has happened to show how the extent of this extraordinary enhancement of prices has taken place.

On May 1st, bituminous coal (Pittsburgh) at Chicago was worth six dollars and a half. A year ago it was \$3.50. Pocahontas coal in New York, from a statement made in Commerce the other day, has advanced from \$3.65 to \$8.25 in ten months. A recent contract for washed Illinois coal at the mines was made at \$2.75. For that very same quality of washed coal \$1.25 was the price a year ago.

At the present time, for screen coal which was contracted for by the University of Wisconsin a year ago at the mines for seventy-five cents for large contracts, sufficient to supply that institution amounting to many thousands of tons, will be taken now at \$3.00 per ton.

I noticed in the Chicago papers just the other day that the cost of the coal for your schools in your city will be increased under the contracts actually made by more than one hundred per cent, the amount paid last year being about \$400,000.00, while this coming year it will be \$1,000,000.00.

An interesting incident occurred today which came to my knowledge. An operator of Illinois coal proposed to a large consumer that he would give

him a contract for \$3.50 to supply him for the winter, the coming year. The buyer said that that was too much and that he had an offer for similar coal at \$3.00. The operator said he would meet that price, and when he was told that the buyer would not pay that price of \$3.00, he offered to furnish the coal for \$2.75.

I mention this incident, because it foreshadows something I shall say later. It foreshadows a situation which now exists and it indicates the fear operators have that these prices are grossly excessive. Already there have been investigations of the coal prices charged by the bituminous coal producers and the anthracite producers by the Federal Trade Commission. Already there is pending in Congress a measure which may take this matter in hand. And therefore operators are now, wherever they can find an unwary customer who will buy ahead, so long as this frenzied buying exists at these exorbitant prices, placing contracts at current cash figures or at very considerable reductions from such figures.

The law of supply and demand has at least a wide variation today in the matter of coal, in the prices that are charged.

Pig iron, Philadelphia, on May 1, 1915, was \$14.25; in 1916, \$20.50; in 1917, \$42.50.

Steel billets at Pittsburgh in those same days \$20 in 1915, \$45 in 1916 and \$80 in May, 1917.

Steel beams advanced during the same years from \$23 to \$50 and to \$80. Steel rails advanced from \$28 to \$33 and now are \$38.

Why should there not be as great an advance in proportion on steel rails as on steel beams and on steel billets? Can any one give a reason? Except that the railroads are very large buyers of that standard product, while the other buyers are more scattered and heterogeneous and cannot so unite, and therefore larger prices are extorted.

And now to the grains. We find that we had a maximum price of \$3.25 on May 11, 1917, while it was \$1.16 a year ago that day. Similarly corn advanced on the same days from seventy-five cents to \$1.59. Potatoes are now \$9 a barrel as compared with \$3.50 in 1916 and \$1.25 in 1915.

But the most astonishing of all are white turnips and onions. White turnips were \$5 a barrel May 1st; a year ago one-tenth that, or fifty cents. Red onions were \$6 a bag on May 1st and fifty cents a year ago.

I noticed this morning in the papers that eighty-eight producers and individuals concerned in the ownership of red onions and white onions and other kinds of onions had been indicted by the Federal government for conspiracy in restraint of trade. (Applause.) It was alleged that that combine had secured three-fourths of the crop of onions, that they had held them in storage and they had pushed the prices up and up and up, until one bag of onions gave them prices several times the amount of the cost; and there are ample supplies of onions in the market to supply all the reasonable needs of the populace for that vegetable,—which has its merits and demerits. (Laughter.)

Why, gentlemen, the enhancing prices have extended beyond the exterior of this world. Crude brimstone is now selling for \$45 a ton, whereas in 1916 it was \$28.50 and in 1915 \$22. Even his Satanic Majesty must econo-

mize. So far as I can learn this is the only advantage that has come to humanity, and even this applies presumably only to a part which has left the world. (Laughter.)

While these vastly enhancing prices rest, it is true, upon the basic fact the supply exceeds the demand, there have been other aggravating causes, as has already been indicated.

The first of these, and an innocent cause, is the frenzy of buying. With the prices going up day by day the canny housewife concludes that she will put in a year's supply; and I heard of one Yankee up in Vermont who was so afraid of the future and thought the war would last a long time that he bought a four years' supply of staple products. Naturally, if instead of buying at the ordinary way or at the ordinary rate it is demanded at once to have supplies far exceeding present needs, this very greatly aggravates the situation, and there is no question that this has gone on all over the country by many inconsiderate buyers, by many people who have not thought the thing through, by many people who wish to affect the immediate future.

It is entirely natural, for instance, for an educational institution, that must have coal in order to run, to buy the amount that is necessary to carry it through the year at this time and have it piled up at the yards, so that the institution will not be closed during the coming winter.

Apparently, that is the theory which has obtained here in Chicago. Your board of education, according to your papers—this only a newspaper statement I am citing—according to your papers the board of education has actually purchased this coal in accordance with those figures which I have given you. I am glad to say that the University of Wisconsin will refuse to buy at present prices or to make any contract at present prices, but only make arrangements to have deliveries through the months on the basis of the market prices as they then exist.

This fear of shortage has, of course, for all of these products very greatly advanced these prices. It is even reported—I don't know whether correctly or not—that on behalf of the British government and the French government there have been vast purchases of wheat for future deliveries, in order that the Allies may have a sufficient amount of that essential cereal.

But on the top of these other things, this enhancement of price, this excessive demand has greatly enhanced the difficulty.

Then there has been a still further cause, and that is speculative holding, buying of future supplies to hold for speculative purposes. I believe you have a somewhat noted character, if that is the proper word in Chicago, I have forgotten his name, who is long on eggs. He bought many millions of dozens of eggs, I am told, and put them in warehouses,—and he has eggs yet for sale—and so the price was forced up abnormally in consequence of his purchases, with other purchasing. This practice of accumulating great supplies which are not necessary either for himself or for others with whom he is associated, used to be called forestalling. Forestalling in law was in the olden days prohibited, with heavy penalties.

Also there has been co-operation of the producers to control the market. This producer and that producer having the same commodities, have united in regard to their prices. Of this there can be no doubt. Of course, you

cannot find a written contract in their safes telling about their union and that they agreed to charge just the same prices on just the same day for just the same article, but we know it has occurred everywhere, from the country crossroads to the great centers. Does it make a particle of difference here in Chicago from which of the coal dealers you buy anthracite? Does it make a particle of difference when you need the antidote for brimstone, ice? The price is just the same,—by an act of Providence, I suppose. (Laughter.)

Everywhere there is combination and co-operation to hold the prices up and to control the market. Therefore we have these four causes: Excess of demand, frenzied buying, forestalling and manipulation to control the market, all working together to result in this enhancement of prices.

It is not necessary that the demand be double the supply. It is not necessary that the demand be more than ten or fifteen per cent above the supply, with all of these factors working together until the prices doubled or trebled; and that is just what has happened during the past two years.

This tendency, once started, is very difficult to control. It is cumulative. The railroads must pay more for coal. Therefore, the prices of commodities are greater. The employees must pay more for food and clothing. They, therefore, must have higher pay. The higher expenses of the railroads must result in their requests for increased rates, and that enhances the prices of all the commodities they carry. Having once completed the circle, then the cycle is gone through a second time, and prices have gone to the clouds, like a spiral ascending to the sky.

Under these circumstances, naturally the profits have been enormous. In the case of the food production such as wheat and corn and products of that kind, the profits have been distributed between the farmers, between the middle men and between the manipulators. The aggregate is enormous but it has not been at one place.

But this is not true for all of the commodities. In the case of those industries like iron and steel, the great increase in price has gone mainly to the producer. It is true that their supplies have cost somewhat more, because no industry is so complete that it does not have to buy something; also it has been necessary to pay more for wages. But, after all, the increased cost due to higher wages and to the additional cost on commodities, has been trivial as compared with the winnings of the great producers.

United States Steel, common, was selling at 85 one year ago. It has now reached 134, an advance substantially of 50 per cent, an increase in the value of that stock by \$250,000,000. This is in addition to paying interest on the bonds, in addition to paying 7 per cent interest on the preferred stock, in addition to paying 5 per cent interest on the common stock, and the last quarter, 3 per cent for the quarter, in addition to accumulating handsome reserves of millions of dollars.

You may say that this marked increase is not justified. But if you look at the books, the returns of the United States Steel Corporation and examine what has been done during the past year, you will find as a matter of fact that the substance that is in the business is now substantially \$250,000,000 more than it was a year ago. Therefore, the rising prices have gone very closely with the actual accumulation, the actual surplus profits of this gigantic cor-

poration. It is a safe statement to make that the excess profits of the great steel corporations during the past year have been \$500,000,000.

I shall read now from the Wall Street Journal of a few weeks ago: "The proposal of Armour & Company to declare a stock dividend of 400 per cent, thus increasing the capital to \$100,000,000, followed so closely the declaration of Swift & Company of a \$25,000,000 cash dividend, to be followed by the issue of new stock to the same amount at par, thus increasing this company's capital to the hundred million mark, calls attention to the volume of business done by the packing houses of Chicago."

It calls the consumers' attention to the fact that not all of this enhanced price for pork and mutton and steak and other meats has been due altogether to the shortage of supply, as has been so ably held by some of the leading packers.

For it is to be noticed that this issue of seventy-five million dollars of new stock was not an issue of water, but was based upon substance that had accumulated in the business, and the same is true of this fifty-million-dollar surplus of Swift & Company.

Does any one doubt that the prices in 1915 for the United States Steel Corporation, for Swift, for Armour, for Wilson and for these other great corporations were not fair and reasonable? Their reports show that they were paying interest on their bonds, they were paying their preferred stock rates at the standard amount and they were giving handsome normal dividends upon their common stock. Therefore, these vast accumulated excess profits are surpluses which are taken from the public, extorted from the public under these extraordinary conditions which now exist. (Applause.)

As to some of the more important coal producers of Illinois, I have been informed that the excess profits at present prices are from one to two dollars a ton as compared to what they were a year ago, or the excess profits are now more in most cases than the price that was received for the coal at the mine a year ago.

I have not made any attempt to find out about the profits of the munition makers, those who make powder and shells and guns and other munitions. They are way, way beyond those that have already been given, in proportion to the investment.

Copper is sold to the United States government at about one-half the amount that it is sold to the ordinary consumer. The price of copper at the present time is thirty-two cents a pound; and this is compared with about sixteen cents two years ago. The copper producers are giving the government copper at a price which was the average before the enhanced prices of the war, and even in those times I haven't heard but what the Anaconda, the Utah Copper, and the Calumet and Hecla and other great copper mines were not making fair profits.

The steel producers are selling to the government at prices far below what they are selling to other consumers. And the same is true for substantially all of the material which is going into the naval lines and construction work in which the government is interested, battleships, and all the lines of necessary war supplies.

I agree that the government should have a fair price, but what is the government but an organism which represents the people. If extortion is practiced on the government, it is passed on to you and to me in taxes, which we will have to pay at once in the future through issuance of bonds. Why should we individually or in groups be subjected to extortion that the government won't stand? Because while these companies say it is because they are patriotic and they want to give the government good prices so they shall not make any war profits,—there is almost a mingling of motives—but I suspect with that beautiful patriotic sentiment there is the fear in the back of their heads that if they do not give the government fair prices something will happen which will possibly prevent their getting unfair prices from somebody else besides the government, and that would be very expensive, and therefore it is much wiser to be patriotic and give the government fair prices. (Applause).

But it is unnecessary to dwell upon the facts. I have brought them together so that perhaps they may have some cumulative force. You were all aware of them before I began to speak. The question which I should like to consider, therefore, is the remedy, and in this matter I shall not claim anything especially new, because I shall advocate substantially the remedy that has been proposed by the government; that is, that there shall be an administrative body to control both prices and distribution.

We in this country are very conservative. We are not convinced by theoretical knowledge. We are not convinced by anything but the facts driven in upon us. Political economists have been telling all of you men who have been to college or to high school that demand, supply and competition would adequately control prices to protect the public.

Well, we all know that it won't. We all know that some other remedy than the law of supply and demand and competition must be introduced to halt this movement, because there is no sign of its cessation,—except that there is being threatened government legislation, which in some measure has made timid the manipulators and those who were promoting and co-operating to control the market.

The remedies are comprised in two broad measures, but are summarized more fully in the statement of President Wilson. Broadly, the things that are necessary are the authority in the hands of an administrative body to control maximum and minimum prices for all essential commodities in which the market may be controlled by co-operation or may be controlled by manipulation, or where the demand exceeds the supply, and to control distribution; for, as you will see, it is just as necessary to control distribution as it is to control prices.

In Great Britain, France, Austria and Russia exactly the same phenomenon in regard to prices began which we have seen in this country, only that they, in the midst of war, were more prompt than we were to undertake the necessary steps to regulate the prices and to distribute commodities, with the consequence that for many of the essentials in these United States, where the supplies of all these essential articles are far beyond what they are in the European countries in proportion to the demand, the prices are much higher than they are abroad.

Already I have said, there has been a halt in this skyward movement, but that halt did not begin until this proposal was made. The very fact that it is proposed that some administrative authority shall have power to hold prices to a reasonable amount has been a deterrent which has prevented these increases partly because it has slackened somewhat the frenzy of buying, but more largely because manipulators fearing that if they forced prices up and the government intervened would have commodities on their hands which they could not dispose of at those prices has tended to prevent manipulation in stock speculation in the future.

We know on the exchange in Chicago it was necessary actually to suspend dealing in futures for wheat after it reached this maximum price of \$3.25. True it was announced that this was a voluntary action on the part of those in the stock exchange, but also it was said that the managers of the stock exchange were in close communication with the government authorities at Washington.

There is another very important reason why it is necessary to fix maximum and minimum prices if this war is to long continue. It is necessary to be assured that there shall be a sufficient product of essential commodities. It has been found advantageous in Great Britain and in the other countries to insure the farmers certain minimum prices concerning commodities which are of somewhat perishable nature.

For instance, it would have been perfectly justified on the part of the government this year had it had the figures, had it had the administrative body, had it had the necessary data to have said to the farmers of the country, "You shall have such a minimum price for your potatoes at such a market, with corresponding prices, of course depending on freight, in other markets for wheat and other commodities." Had that been, it would have resulted in even a larger amount of commodities for the market. (Applause.) This has been done in England, to the very great advantage of that nation.

However, before it is possible to wisely fix prices, to wisely guarantee future prices at a minimum, it is necessary to know the amount of the commodity available, to know the probable amount which will be produced, and hence it is necessary to have a careful survey of all important products, not only the existing supply, but the potential supply and probable demands, in order that the situation may be gauged. This will require a very close study by the department of agriculture of all these commodities.

To be sure, we do have something of this sort in the way of estimates by the department of agriculture, but only of the roughest kind. We have nothing anywhere amounting to an accurate survey of the essential resources, in sight, potential, and those with relation to probable demands.

Furthermore, I have said that it is necessary to have these administrative bodies control distribution. There must be preferential distribution. The railroads must have enough coal to run their locomotives. All those industries which are very necessary for ship-building to carry on the war must have the essential supplies of coal. Coal must be furnished sufficient to heat our homes, but there are other industries which are not so essential. There are industries which manufacture luxuries or, if not luxuries, other articles which can be spared or the construction of which can be deferred.

These facts have been recognized by England, and there is one board composed of able men giving their entire time to this question of preferences. No man in England can get an order filled by any manufacturer until it has been approved by this board.

All orders are divided into three classes: A, B, and C. A, those fundamental essential necessities to prosecute the war and feed the people; B, those things which are somewhat related to these essentials, but must wait; and C, things that are convenient and nice and desirable, but need not necessarily be done. And until all the needs of A and B are met, those things which fall in class C cannot be touched by any manufacturer.

This sounds to us like an extraordinary proposal but it was driven upon England by the grim logic of events. If we in America are to do our utmost to carry this war to a successful conclusion, we shall have to put that first, we shall have to do every essential thing in the way of control to produce those commodities which are fundamental to ourselves and to our allies.

One of the remedies which has been applied very successfully in the partial lessening of the difficulty is a campaign of education, which is now being carried on by the State Council of Defense and the National Council of Defense and other bodies in regard to buying, urging upon everybody to buy precisely as they have done before. Much good has been done in that way and much more good can be done by continuing that process of education.

Also another remedy for these enormous profits will be the tax, the surplus tax upon excess profits. In England these surplus profits were first taxed in 1915 at 50 per cent. They were raised to 60 per cent in 1916, and now are 80 per cent. The excess profits in England yielded her \$700,000,000 last year to carry on the war, or more than one-half of what the Senate is seeking to raise by its entire revenue bill beyond the ordinary revenues.

The House of Representatives proposed that in this country there should be a 16 per cent of the excess profits tax, and it was anticipated that in this country it would yield \$200,000,000, but the Senate, I note by the papers today, has proposed a substitute that this shall be only on above eight per cent on the average of the last five years. These tremendous profits of the past year and a half are to go in to give you a base before the excess profits begin. It is obvious that that \$200,000,000 will be vastly reduced under that basis.

I think it is always true that the Senate is—to use the exactly fitting word—more sensitive to forces from big business than is the House, and we hear at once of a lowering of these taxes much lower than the House has proposed, but the bill of the House, if compared with the taxes which are being made in France, England, Germany, Austria or Russia, are very moderate, very moderate indeed. And in excess profits,—while I don't say in regard to all these figures—but I say if all these enormous profits such as have been enjoyed by the steel corporation, by Swift & Company, by Armour & Company, and by the great munition factories and by many other industries, if they are allowed to continue, 16 per cent upon the excess profits is absurdly low.

However, these excess profits may be reduced by these other measures

which have been advocated. If, of course, there is created an administrative commission to enforce reasonable prices, the excess profits will be enormously reduced, and it might be that upon those then 16 per cent would be sufficient. If there is not regulation to reduce the prices to reasonable amounts, then 16 per cent is far too low.

Another fundamental reason why it is necessary that an administrative commission shall be created to stop this enhancement of prices, and not only to stop it but begin the movement of recession to normal prices, is to prevent a gigantic panic in the future. Sometime this war must end—we hope it may be soon—but the dreadful catastrophe which is now upon the world may continue for a long time, and finally the time will come when with this enormous expansion of building power everywhere,—the time will come when the supply will exceed the demand, and these prices in the sky will fall to the earth; and then there will be a gigantic panic, perhaps one of the greatest that has ever befallen this country.

That time can only be avoided by now gradually, through public pressure by some administrative way, reducing these prices to something nearer normal and reasonable amounts.

You may say that I am assigning a task that cannot be performed by any living group of men. If you mean by that any living group or groups within the bureaucracies of Washington, I agree with you. (Applause.) Oh, I know those bureaucracies. I once was a member of one of them for a few years and also in other capacities I have dealt with them. Secretaries of war, secretaries of the navy, and secretaries in other fields, unless they are dynamos of energy and men of broad power and with wills inflexible, are almost useless against these bureaucratic chiefs, for they have been long bureau chiefs and when anything is proposed they have bushels of reasons, not at the price of onions, but much deeper, to give why a thing should not be done. And the secretary is not able to meet them, and the bureau chief prevails by delay, by passing it from one place to another, or, if the order still persists, to get other bureau chiefs to come to his aid. The bureaus spend great sums of money and they are able to give favors to Congress, and when it comes to a conflict between a bureau chief and the staff of the general army, a staff which has money to spend, the bureau chief beats the staff, every time.

There is but one way in which this great task can be performed, and that way must be the way shown by the experience of England and France and Germany. That is to bring in your highest class business men, your highest class economists, your highest class lawyers and the ablest men of the country and put them on these boards to do this great administrative work. (Applause.)

The bureaus of England were just as fossilized as were ours at the beginning of the war, and before the crust of those bureaus was broken through, England paid heavily for it, heavily in money and heavily in men.

I trust it will not be necessary for us to have to go through the experience which England went through in this respect, but from the outset when this bill is passed, there must be placed at the head of the bureau to control prices and to do this regulatory work men of great intellectual powers and

broad experience, who are accustomed to handle these great questions. You cannot expect the \$50,000 job or the \$100,000 job, such as these men are, to be performed by clerks at \$2,000 or \$3,000 a year. And I am glad to know,—I am delighted to note that the President has seen this at the outset and proposed to put Mr. Hoover, who has had this great administrative experience in Belgium and elsewhere, at the head of this work. (Applause.)

It is fortunate that we are looking at the right direction from the outset. Also when our Council of Defense was built up, outside of the heads who were ex-officio members, some of the ablest business men of the country were named, and the situation is that we have escaped ship-wreck almost at the outset, and that is due, even more largely than perhaps some of you know, to this Council of Defense.

And yet the other day the Senate put in its appropriation bill,—I think it was the war appropriation bill—that in making this appropriation nothing should be construed to in any way extend the powers of the Council of Defense. The bureau chiefs have gotten in their work. Jealous of any outside authority, jealous as they are impudent and futile and reactionary, they will do everything possible to prevent these mighty problems being handled in a satisfactory fashion. (Applause.)

In summary, then, my remedy for this great problem which now confronts us by the enhancing prices is to have a commission or commissions with powers to fix maximum or minimum prices and with powers to control distribution, and in addition to this, place heavy excess profit taxes to carry on the war.

I trust that at the earliest possible moment Congress will enact this absolutely essential legislation, and that there will be placed at its head Mr. Hoover. Already he has begun to build up his force of men in a preliminary way. I am informed, and I have great confidence that we shall succeed,—I hope this year, and if not, the next, if the war goes on—in handling these problems wisely and rationally, as have England and France and other countries engaged in the war.

If I have not talked too long I should like to take up, however very briefly, some suggestions in regard to the future.

When five years ago I gave an address upon concentration of control and advocated the principles of concentration of industry with regulation and proposed there should be a federal trade commission to have authority to control co-operation, as has been alluded to by the Chairman of the evening, it was regarded as wild Wisconsin radicalism, and the Republican and Democratic parties in the campaign of four years ago last Autumn would have absolutely nothing to do with the proposal; they both denounced it as socialistic, and they applied as many other odious terms to the proposal as they could think of.

And yet, when Congress convened, and the problems which confronted them were fully considered, and it was seen how futile had been the attempts to control industry by the Sherman Act, a trade commission was created; not with sufficient powers, but with large powers, and that trade commission, which the business men feared, is now to be found to be of great advantage to them. And these proposals of five years ago are mild and trivial com-

pared with the proposals which now Congress is substantially certain to enact into law under the stress of this great war, so rapidly do times move.

The Sherman law forbids any agreement among producers or anyone to agree upon prices, and yet the Interstate Commerce Commission says that the railroads must pay the same price for the same service everywhere, whichever the railroad.

In consequence of that, everybody has forgotten that all the railroads in the United States are violating the Sherman Act every day. They could be prosecuted successfully for violation of those acts just as certainly as the men who are selling onions; but because through the Interstate Commerce Commission the public is protected, we have forgotten, absolutely forgotten, that the railroads are amenable to the Sherman Act.

In the same way, when there is created an administrative commission to control prices, fix minimum and maximum prices and to protect the public in these matters of production and distribution and costs, we shall again forget that the Sherman Act is applicable, because it is an advantage. It would be an advantage for those onion men to have united to get together the product, to gauge the market, to distribute it wisely, and so produce their commodity with concentration and co-operation, if only a fair price had been charged. And when we have governmental authority to compel fair prices we will have co-operation and concentration in all lines of industry, not hidden under the table or in the dark, but in the open, just as have the railroads, and everybody will approve and futile prosecutions under the Sherman Act will cease. So it may be a possibility when the time comes to get the Sherman Act amended so as to permit co-operation which is not detrimental to the public welfare, a proposal which I made to the committees of Congress at the request of the Chamber of Commerce at the time to which Mr. O'Leary alluded.

Why, already, we see a situation forecasted. Mr. Peabody of a great coal dealing firm here in Chicago at the request of the Interstate Commerce Commission has brought the operators together, and they are going to agree on a plan approved by the Interstate Commerce Commission for a diversion of the coal to the lakes, to a division of the materials among the mines, to a distribution of territory, to all these things for which they could be prosecuted under the Sherman Act.

knew that it was requesting Mr. Peabody and other coal operators to violate

When the Interstate Commerce Commission did that the Commission knew that it was requesting Mr. Peabody and other coal operators to violate the Sherman law by a division of territory, by a division of production, by agreement of selling agencies, by co-operation, by distribution. Undoubtedly, the advice, if carried out, will violate the Sherman Act. But will they be prosecuted? Of course not. For the public will be benefited. It is a public enterprise.

It but illustrates that these problems which have been handled unrationally will be handled rationally when the new time comes, when we shall have the business men co-operating, when such co-operation is not detrimental to the public welfare and we have commissions to control that co-operation.

There are enormous advantages that would come of these economies, almost beyond calculation, a saving in waste, a great advantage, by saving our coal and saving our timber, from every point of view. The coal dealers in Illinois for a long time have wanted the coal miners to agree upon division of territory and a pooling of the product among themselves proportionately and having common selling agencies in Chicago, but they could not do it under the Sherman Act. And now we have coming into this the Government, not buying for the government alone, but we are going to have the Government buying all these commodities which are to be bought by the billions of dollars which we are to loan the allies, for distribution in Russia, England, France, Belgium and Italy. We shall have co-operation not simply of the class of the cartels of the small group, but we shall have national co-operation, national buying; we shall have international co-operation and we shall have international buying. That is imminent in this country. It already exists in Europe.

And when the war is ended, do you suppose we shall go back to the old cut-throat competition methods of prices too high one day and too low another, of feast or of famine, or shall we have a rational system of production and distribution under governmental regulation promoting co-operation?

When the war ends we will have two great economic groups, the central powers and the group of countries allied with them, and the allies, the United States and the most of America. For years, for many years, they will be suspicious of one another, they will be hostile to one another.

Why, only the other day we found out the civil war had ended because it was proposed that the northern Presbyterian church and the southern Presbyterian church were again to unite,—more than sixty years ago. The animosities of this great war will last for generations, unhappily will last for generations.

Under these circumstances, neither one group of a country nor the other can go back to individualism in buying and selling; it is impossible. Either one that did it would be beaten by the other; and so we shall have gigantic co-operation. I knew it was coming,— as an economic necessity, I have known it for years. But I never believed I would see it in my life time. The war, however, has forced events at a speed which nobody had predicted.

You may say this is socialism, but whether it is socialism or not, it is here. And we shall not return to the old conditions. However, I wish to call your attention to the fact that in controlling prices, in regulating distribution, it is not proposed that the nation shall undertake production on a large scale. Its production will be confined to its own immediate needs of particular articles like battle ships and munitions, possibly railroads in Alaska, and things like that. There will be the great possibilities for individualism, for capacity and knowledge, for all of the advantages which have existed in the past, in the future.

If one great corporation runs its business more efficiently than another—and that is the special subject which you have been considering—its profits will be larger. Therefore, there will be demands for men who know the

methods of efficiency, men who know resources, men who know markets, men who can gauge the situation, men who will handle their productive work with the same initiative and capacity and ability that has been required in the past.

It will be indeed a misfortune if we were to sink to the dead level of mediocrity in which there would not be the strongest incentive to individual capacity and advance as now exist. But large and larger rewards will be just as certain in the future as they have been in the past in all legitimate lines. Only we shall promote concentration where concentration saves waste. Where it conserves our resources, where it prevents over-production. We shall have co-operation in distribution and we shall gauge our markets so we shall produce enough and no more, and we shall have the public protected through commissions, state and national, so that we shall not have the country mulcted of hundreds of millions of dollars in many industries as has been done this past year.

It seems to me that in the future we shall be on a higher plane economically than we are now. We shall adopt the principles that men in business may co-operate as they may in religion and as they may in education, without being regarded as thieves or robbers. We shall say that co-operation is wrong only when conducted to the detriment of public welfare. So far as it conserves our resources, so far as it makes industry more efficient, it will make deeper and lower prices and will be of advantage to the public, and, therefore, so far as I am personally concerned, I do not look upon these tendencies, these inevitable movements, with alarm. They are, it is true, legislated only for the war, but, while some of them may be abandoned after the war, we shall never go back to the old situation when we had blind faith in regulation through the law of supply and demand and cut-throat competition. We shall be on a newer, higher economic plane, when men of business, instead of being enemies, may co-operate for their mutual benefit.

I thank you. (Prolonged applause.)

CHAIRMAN O'LEARY: I think Dr. Von Hise has rather made us willing to accept what we must accept, governmental control of industry in war times, but I like to think more of his last remarks, I like to think that that control will be exercised through co-operation, rather than by other means.

A few days ago Chicago had the pleasure of entertaining the labor members of the British Commission visiting the United States. There were on that Commission— it was called the Labor members—two members of trade unions, one a professor from Oxford University and one a capitalist. I was very much interested in the comments of the professor from Oxford in speaking of the very laws that Dr. Van Hise has told you are being considered in Washington, the laws regarding maximum and minimum prices, the laws controlling industries through the boards provided for that purpose. But I was most interested in the information that while those laws may stand, while the power was there, that it was not being used because it was not necessary. Co-operation was effecting what the law gave power to enforce.

And I am hopeful that that is what will occur in this country. I hope we won't be so impressed with the needs of control that we'll ask that the bureaucrats shall have control of industries, for that would be just as unfortunate as the present administration of bureau affairs is. But I don't gather that we are to take that thought away with us. I gather that Dr. Van Hise leaves with us the message that with the co-operation of government and business the sins and evils and iniquities of the past will not exist. (Applause.)

PRESIDENT KESSLER: Before we bring the conference to a close, we want to hear again from Mr. Emerson, Mr. Knoepfel, Mr. Gilbreth and one or two others. In order to balance the meeting we are going to ask each speaker to come within a five-minute mark.

The first speaker needs no introduction. Mr. Emerson. (Applause.)

MR. EMERSON: Mr. Chairman, Ladies and Gentlemen of the Western Efficiency Society and Guests: I remember the story of an Indian in Florida who was asked to make a bow and arrow. He said that any stick is good enough for the bow, but it takes a very good stick to make the arrow. Any organization is good enough for the purpose in times of peace. It requires an extraordinarily good organization to stand the stress of a great catastrophe. Any tug can sail on a mill pond in the summer time. It takes a staunch boat to breast the ice of the Antarctic ocean or the typhoons of the tropics.

I have been most interested in the study of organization by taking lessons from nature. Animals are all organized on the same general plan. For the last five hundred million years they have been so organized. And in all the millions of species and all the billions of individuals they are just as much prepared for war as they are for peace, because the animal life is constantly in a state of war.

There are two great forms of organization in nature; that found in animal life and that found in the life of plants. I have often stood and marveled before one of the great trees of California, that rooted in one spot, unable to move away, for thirty-five hundred years, have been able to withstand the storms, the fires, and droughts and every other catastrophe which came to it. Certainly we can find in nature examples of organization or models of organization that we have not yet found in humans.

There is one animal that I recall, the dodo, that lived on the island of Mauritius. There were no animals there to prey on it, no men to hunt it, so that it lost the power of flight, it lost the power of offense, and the moment sailors came to that island the poor dodo became extinct. That is the only case I know in nature of an animal becoming so defenseless that it went down and out the first moment any enemies appeared.

There is a form of organization that has had to withstand these stresses of nature, where no nonsense will do, and that is the organization you find in the ships at sea. And why is that? That is one of the most model forms of organization of which I know, and because those who had a different kind of organization never came back to perpetuate it. It was an organization that had to stand up under stress and under difficulty. And it is not a democracy,—that is what I want to say here. Do not comfort yourselves

with the idea that this is a fight between democracy and autocracy. That is not the kind of fight we are entering into. We are entering into a fight of a wise democratic autocracy against an inept bureaucratic autocracy. We had upon our side in Russia an inept bureaucratic autocracy, and it went down. We have in Germany an unmoral autocracy. That is its fault. But its strength nevertheless lies in the fact that it is an autocracy, and we all know as we stand here today that England has become autocratic, that America is autocratic today.

Professor Van Hise in his talk has pointed out how we have had to give powers that were never before thought of in our government, and if we are to win, it is because we are going to delegate autocratic powers to some central power that can see it through.

We cannot afford in this fight not to take a lesson from our enemies. We cannot afford to allow them to beat us out, because they have a centralized power that is necessary and always has been necessary and always will be necessary to carry on a great struggle of life and death. (Applause.)

PRESIDENT KESSLER: The next speaker is Mr. C. E. Knoeppel, President of the C. E. Knoeppel Company, Counsel on organization and management, of New York, better known through his classic on Industrial Preparedness and Maximum Production. Mr. Knoeppel will say a few words on the relation of industrial engineering to the government. (Applause.)

MR. KNOEPPEL: Mr. Chairman, Ladies and Gentlemen: It has been my good fortune to be in a somewhat close association with Mr. Coffin of the Council of Defense, and through correspondence and conferences in Washington, I have had an opportunity to give some attention to analyzing the workings of that Council of Defense with its advisory commissions and boards.

Without desiring to throw any bricks, I feel that the Council of Defense with its advisory commissions and boards is a good deal like the little girl who asked her mother if she could go swimming, and the mother replied, "Certainly, daughter, you can go in swimming, but you cannot go near the water." That in a measure is the position the Council occupies today. Upon close analysis, its advice, made up of wonderful brains, has accomplished a great many things, to be sure, but the big things it would like to do it is prevented from doing.

In one large plant making dirigibles, I was told by one of their men in the plant that they could do twice as much in their line of work if it were not for the interference of government officials that have charge of that phase of the work. An arsenal head was forced to give and place an order on his own initiative, without knowing exactly what the real plans were, in order to keep the plant, which was holding up its capacity and complete equipment for Uncle Sam busy, even though the allied commission was begging to have the plant turned over to them for a number of years.

There was one company with a large organization of men and equipment all waiting for Uncle Sam that got an order for three days' production.

All through it you can see there is no intelligent or comprehensive plan from the top down with reference to this very question of getting ready for war, and it is largely due to the fact that we have the politicians and bureaus

to deal with. We have got to do something if we are going to win the war. In the latter part of March, Mr. Coffin and I talked over certain phases of the production situation, and he asked me for a list of all available engineers in the country, in our line of work particularly. I could not give it to him, because I did not have it. He then asked for a committee, to name a committee of men to serve on these production problems. A committee was named, and then he asked for a national organization that would give the government contract with the industrial type of engineer. I felt I could not do that as an individual, for obvious reasons, but fortunately your Western Society was giving serious thought to the very self-same problems and how to give the government the mechanism which the government through its Council of Defense required. The industrial engineers which we are speaking of for this work,—I might explain it in this way, that the mechanical, electrical, chemical and civil engineers have to do with the physical side of things. To my way of looking at it the industrial engineer is the one who correlates all of them.

My five minutes is just up but I want to read this final letter from Mr. Coffin to this conference, which may interest many who did not hear it the other day:

“Our country is embarking upon an industrial and military activity which bids fair to tax even its tremendous resources to the limit. Our task is not one of a month or of six months, but may extend over a period of years. There can be no withdrawal from the position which we have taken. No other issue than that of victory will be acceptable to us. But to achieve this result, we must be prepared to concentrate our every effort and every ounce of our great power, both in materials and in men.

“It lies within the province of our efficiency engineers to play an important part in this great work. To conserve our resources and to make efficient our expenditures in effort, in money, in materials, and in men, will sooner or later require the concentration of our industrial engineers in every line.

“To effect a national organization of such character as will provide to the government a single channel of contact with that group of men peculiarly skilled in the promotion of industrial efficiency, should be the greatest work of the Chicago conference.” (Applause.)

PRESIDENT KESSLER: The relation of the engineer to war will be the subject of a speech by Mr. Gilbreth, who has made himself famous through his mocro-motion work in this country and abroad. (Applause.)

MR. GILBRETH: Speaking of efficiency engineering, I would like to call the attention of the people here that this is the second time I have had a new subject sprung on me today. (Laughter.)

I don't know anything about the relation between the engineer and the war tonight, for the reason that I am carried away with the speech that we have heard, and I congratulate my fellow members and their guests of the Western Efficiency Society who have heard this talk by Dr. Van Hise. (Applause.)

I have had exceptional opportunity to study this thing, as I told you today. I have crossed eighteen countries in Europe since the war. I have

been back and forth twice, and I have had the distinction of having not one detective following me around, but two, fearing I might have some allegiance with some foreign country. However, they found they were mistaken. (Laughter.)

But I have had an exceptional opportunity to study this subject and I consider the speech that I have heard tonight epoch-making. President Van Hise of the University of Wisconsin has a record behind him of being ahead of his times. I hope that is not an Irish bull, having a record behind him of being ahead of his times. There is not one flaw in what he said, as I see it;—that is, with the exception of one. I never can agree with him, much as I like him and admire him, his suggestion that he would prosecute under the Sherman law any man who hoards the onion supply. (Applause and laughter.)

PRESIDENT KESSLER: The next speaker will be Mr. Berndt, the manager of the Betterment Department of Joseph T. Ryerson & Son. Mr. Berndt has also been chairman of the Executive Committee of this conference. He will speak for a few minutes on the results of the conference. (Applause.)

MR. BERNDT: Mr. Chairman, Members of the Western Efficiency Society and Ladies and Gentlemen: When we opened this conference I was asked to say in a few words something about the purposes of the conference. One of the things I said that it was our idea to dedicate this conference to a constructive work. I wonder whether we have not been too modest. I believe that the conference has been more than constructive. It has made history. I cannot see otherwise.

I think the Western Efficiency Society has a right and can be justly proud of meetings such as we have had, and if we had had no other meeting than the one tonight and heard no other papers than this paper tonight, all the efforts, all the plans would have been well repaid. (Applause.)

Added to this, and going back meeting to meeting, such meetings as this afternoon's program, when besides such speakers as Mr. Porter, Mr. DeField, Mr. MacArthur, we heard from Mr. Frank Gilbreth when he told us so much about the possibility of applying that invention and those mechanisms for which he is so well known to this problem of industrial preparedness, and we had again done, I believe, a real constructive work and made some more history.

Then looking back to last night's program when we were so fortunate in having here with us a man who is distinguished and so capable of representing labor's viewpoint, and not only that, we had under one roof the men who so ably discussed this labor view-point from all sides, including Mr. Barth, Mr. Emerson, Mr. Knoepfel, Mr. Porter and Mr. Gilbreth, it seems to me that has some analogy to the co-operation of which the chairman spoke on the English labor boards.

Then again, yesterday afternoon, when Mr. Grieves and Earl Dean Howard spoke on that very important problem, the employment problem, and we were told about the wonderful possibilities in co-operation there again.

And back again to Wednesday night's program, when we heard about

educating the management to the human factor, from Mr. Emerson, Dean Hotchkiss, Mr. Dietz and Mr. Puckett. And we hardly need add the first and opening session, when Mr. Knoepfel opened the conference and brought to us the letter and the good wishes of Mr. Coffin, besides the great fund of information which he had collected and given to us.

It seems to me that we will have done something that can be remembered for years to come.

Then besides all this, we have had the round-tables, and last, but not least, the exhibits, in which, I believe, have been indicated two special points; one, the great constructive work which has been done and, two, the present co-operation among the industries, when they permit the results of their work to be shown together in one room.

One other thing which I suggested as a result of this conference is a permanent organization of the men and thought brought out in this conference. This is planned for tomorrow morning at 10 o'clock in the organization of The Society of Industrial Engineers, which it was hoped would provide the point of contact mentioned by Mr. Knoepfel in the letter from Mr. Coffin.

A committee has been meeting regularly as often as possible, and for as long a time as possible, considering this organization. On this committee it has been our privilege to have the advice and counsel of Mr. Emerson, Mr. Knoepfel, Mr. Gilbreth, and Mr. Porter, and it would seem a queer occurrence if after having all this talent we could not organize and satisfy Mr. Coffin's wishes.

We have met and we have made plans for tomorrow. We have attempted in these plans to follow Mr. Emerson's suggestions regarding using the natural organizations.

Just a few words about the American Society of Industrial Engineers as was originally planned. Since that time the committee has broadened and now we think we have a right to call it "The Society of Industrial Engineers."

I am going to read a statement of the objects:

1. **A National Organization.**—There are in existence today in various parts of the country 20 or 30 societies and organizations which are primarily interested in the study and promotion of Industrial Engineering. A coordination of the ideals and aims of all these organizations in a representative central body, will alone make it possible to give the study of efficiency in industry and the science connected with the solution of industrial problems, or in other words, Industrial Engineering, the position it deserves among the arts and sciences of the world.

2. **Local Organizations.**—Each individual organization has its own particular and peculiar field of study, research and activity. A national organization should in no way change this except in so far as the exchange of views and ideas may influence one or the other of the local bodies to make changes on its own initiative; nor is it expected that the national body should change the local control, management or direction in any way, although here again such changes may be initiated by a local society after a consideration of the organization's plans of all the others.

The national organization, being interested in the broader movement for national standardization of the principles and fundamentals of industrial management, should, however, serve to inspire and strengthen each local organization to a broader conception of the value and importance of its local activity and influence it to a more aggressive program.

Because of its nation-wide effectiveness such a national organization should also influence and inspire the forming of many new local bodies for the study and promotion of Industrial Engineering, guiding and supporting them through their early years.

3. **Individual Members.**—Individuals should be permitted to affiliate with the national organization only through membership in a local body. The fact that such local body is a part of the national society would, however, without doubt, increase the value of membership in the local organization and would moreover tend to give such general publicity to the work of each group as would promote its membership.

If the work of the Industrial Engineer is to be made a profession, a code of professional ethics must be established. This is obviously an important work for the national society to perform. Every right-minded person who is engaged in this line of endeavor must see the need for this, and there can be little doubt that he would not support through membership in local groups such national activity as would tend to place his daily work on a professional and ethical plane.

4. **Education.**—As yet there are available no standards satisfactory to all which can be applied to the work of educating the students who desire to follow Industrial Engineering. A national organization should be an important influence in the establishment of such standards and should co-operate with those educational institutions which are interesting themselves in the teaching of this profession.

5. **General Influence.**—Industrial Engineering in actual everyday practice is only in its infancy, although it is gaining recognition day by day. Before it receives the universal recognition it deserves and is practiced as such in all of our industries, a national organization must be formed to establish standards of practice, accepted principles, and recognized theories, and to give them wide publicity, educating all factors in industry to their value. National conferences would do much in this direction.

6. **Government Influence.**—In such national emergencies as the present and even during normal periods, an invaluable service would be rendered to our country, state or city if a well established and organized body of engineers were available, to which our various governments could turn for necessary counsel, service, and support in the solution of industrial problems.

That is a proposed statement of the objects for this new organization.

Briefly, the proposed membership classes are as follows:

1st: Managing executives in industry,

2nd: Professional industrial engineers, including those retained and those resident,

3rd: Educators, including writers, lecturers and teachers.

By this membership plan we know we will have left out many other possible members, but it was thought at this time in the recent emergency

we are interested in those who are themselves immediately interested in the problem of industrial preparedness and other possible groups such as juniors and students will be planned for later.

Further, in regard to this proposed organization, a meeting will be held tomorrow morning at 10 o'clock on the parlor floor. All of you are invited to come and hear the further plans.

In closing I would like to propose to our president that it would be only right for this organization to show its appreciation to all the speakers on the program and all those who have entered into the discussions and all our guests, in the form of a rising vote of thanks.

I thank you. (Applause.)

PRESIDENT KESSLER: I am going to ask Mr. Hill, Efficiency Engineer of the Berger Manufacturing Company of Canton, Ohio, to say a few words on the co-operation of the local resident engineers. (Applause.)

MR. HILL: Mr. Chairman, Ladies and Gentlemen: This has been my first experience with the Western Efficiency Society. It has been a great treat and privilege to me to be here at these meetings.

The idea of coming here only came to me a few days before I actually came on. The motive back of that is the motive that I believe is in the minds of the ownership of a great many large businesses in this country, that they desire, as the English would say, to do their bit.

The thing is how to do that bit. And it was in hope of learning how best to do the bit that our company would like to do, that I came to this meeting.

It is true that the efficiency men who are retained by a number of concerns, who are in practice for themselves, as I have been in past years, until the last year with the Du Pont Company, when I became resident efficiency engineer, although not resident long at any one place.

The scope of this work is very great, as we all realize. It is so great that we probably cannot conceive just what it does mean. We have heard so many good facts about this thing that I thought in the few minutes given me that I would try perhaps to draw your attention to a few things that have not been mentioned, which, I believe, could be properly undertaken by this new society of Industrial Engineers.

That is that they could solicit the co-operation not only of the Engineering societies which now exist, but also of the societies such as the associated advertising clubs, the purchasing agents, the large organizations of salesmen,—and I am speaking particularly of those organizations the membership of which is largely dependent upon the spending of money. Statements have been made about the money wasted in advertising. No doubt there is a great deal of truth in that.

Then it also occurred to me that efficiency men are perhaps best known as professional economists, that if they can reach out and interest these other associations whose interests have been largely to do with spending,—economical spending, if you like, because there is not anything in my thoughts of this nation-wide economy which the papers are taking up and spreading broad-cast.

Besides these associations I have named there are at least a half dozen

others that I wrote down that I believe could very well join this membership, with perhaps representative members in this proposed society.

I thank you. (Applause.)

PRESIDENT KESSLER: This afternoon I was looking over the record of registration cards and it was interesting to note that the people who have attended this conference have come from one hundred and ten cities outside of Chicago, and there are nearly seventy cities represented in the attendance at the conference. We have had with us delegates from Texas. I notice we have had Mrs. Ellis, a nationally known lecturer, a woman who has lectured in forty-seven states; she has been in attendance at all meetings. We have had men and women coming from the New England states, Washington and New York, and a great many others states of the Union.

Just before we close I want to call upon Harry Franklin Porter, who will speak a few minutes on the attitude of industrial engineers relative to the proposed Society of Industrial Engineers. (Applause.)

MR. PORTER: Mr. Chairman, I think perhaps I had better not talk at all, because it is getting so late. All I want to say is that the call is come and we want to get ready.

A year ago, when a certain board was formed, the federal trade commission got busy and called upon the economists and others to put across an idea of economy. I boiled out with rather righteous indignation because of the fact we industrial engineers were not recognized and could not get our point of view considered. At that time I was connected editorially with the Industrial Magazine, now Scientific Engineering, and I wrote an article. I was going to read some parts of it, but however, I will mention but an instance.

There are unquestionably great difficulties in the way of putting this thing across but these great difficulties can be sunk now in this supreme need of the hour. I am sure that most of these ideas are merely temperamental phases of opinion, so you will bear that in mind as I read this. It was written about a year ago.

"Morris Llewellyn Cooke took a somewhat more hopeful view of the situation. While in hearty sympathy with the idea of bringing the organizing or management engineers together in a single organization, because of the difficulty some of the leading men in the management movement seemed to experience in co-operating with others of the same grade, but exactly not of the same persuasion, he thought it would take a pretty 'heavy' man to bring them together. He thought that there would be grave difficulties in determining the requirements for membership in such a society. Like Mr. Gantt he believed that organizing engineers ought to be able to find a haven in the A. S. M. E. but at the present time that body was opposed to having sections. Ultimately he hoped to see all engineers brought together in one general body, with sections devoted to the work of different branches. The Taylor Society was admittedly limited, and rightly so, in his opinion, because his conviction was more and more that it is well worth while that this one organization should continue for some time to come to confine itself pretty definitely to those who are conversant not only with the phil-

osophy of Mr. Taylor's teaching but also measurably with the mechanism through which he sought to make this philosophy operative.

"In regard to the main statement in the editorial Mr. Cooke said: 'Some of the ideas which you so splendidly voice in this article have been in my own mind. For instance, it seems a crime that the Federal Trade Commission should be considering costs only in their historical aspects. Such work as that being done by Day and Zimmerman, which has relatively little interest in the historical side, should be among the models.'

"Mr. Cooke also thought that the leading men in the management might well come together at this time to discuss ways and means by which they collectively could place themselves at the disposal of the national government to give what aid they might in the preparedness movement. As a class the management engineers certainly ought to be helping at the present time; of that there can be no doubt. He would be glad if some disinterested agency would take the lead in bringing them together for this purpose. He for one was perfectly willing to co-operate."

This splendid letter is but one of a number of equally splendid letters. I am sure that we, as Mr. Berndt so well phrased it, could do no better thing at this time to serve our country than bring together these men who have made a specialty of harnessing up the forces of engineering and nature and science for the sake of getting results and at the same time considering the human element and getting results in the right way and right manner through the efficiency engineer and industrial engineer. The call has come from Mr. Coffin to place this body at the disposal of the government, and I think we ought not to hesitate in responding in the right way. (Applause.)

PRESIDENT KESSLER: I will recognize Mr. A. B. Segur.

MR. SEGUR: I have a resolution which I would like to offer at this time or at least have considered:

"Whereas, this country is in a state of war with Germany, and the problem before it is the adequate preparation for assistance to its allies in winning the war in the shortest possible time, in order that democracy may more quickly be made a world-wide certainty; and

"Whereas, it is evident from the lessons of the war to date that industry, transportation and agriculture are as important in the conduct of this war as are the military phases; and

"Whereas, from all the available sources of information it is apparent that our country not only lacks proper preparation for war, but that there exists no comprehensive and constructive plan for mobilizing our resources in men, materials and equipment; and

Whereas, while there exists a mechanism for the preparation for war in the form of the advisory commission of the Council of National Defense and its contingent boards, their powers are chiefly advisory, they being clothed with responsibility without authority to get things done quickly and effectively, and

"Whereas, the operating section of the country in the form of plants, individuals, societies, and organizations should be utilized to the best advantage, are unorganized and uneducated for the public service, and

"Whereas, there must be proper coordination between the advisory func-

tion, the government departments having to do with preparing for war, and the executive function of the nation in order that our task in this war may be properly performed; therefore,

"Be It Resolved, That this Society in National Conference assembled urgently recommend to the president, his cabinet ministers and the leaders in Congress, an immediate investigation by organizations, industrial engineering specialists and business executives of national reputation, of all activities having to do with the preparation for war, both in industry and in government with the view to perfecting comprehensive plans based on the lessons of this war which will place the work in the hands of a strong central control, either in the form of an inner-cabinet of a few strong men, or in the form of greater powers for a reorganized Council of National Defense."

Mr. Chairman, I would like to move that this resolution be adopted.

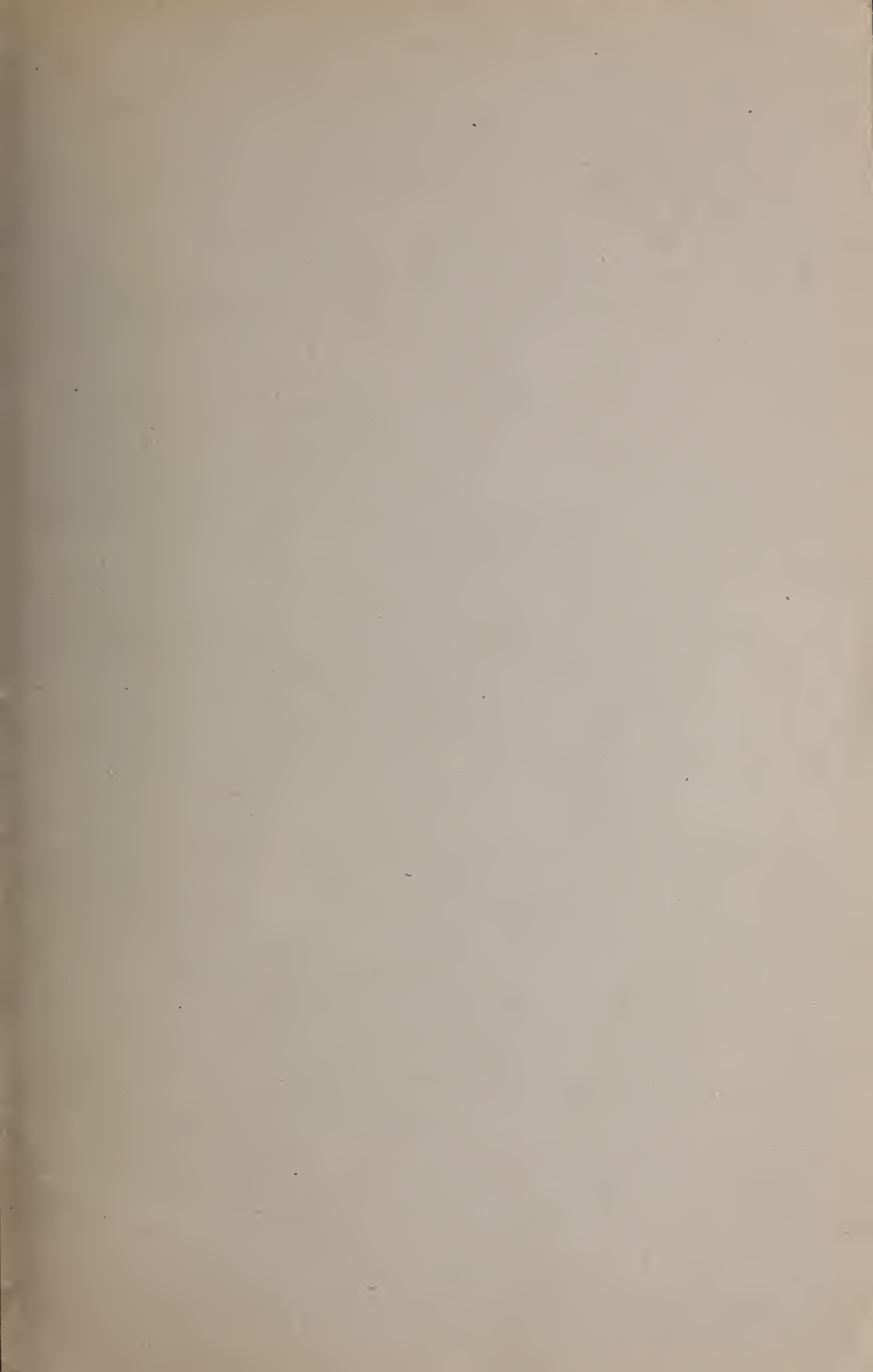
(The motion was duly seconded, and on being put to the meeting was unanimously carried.)

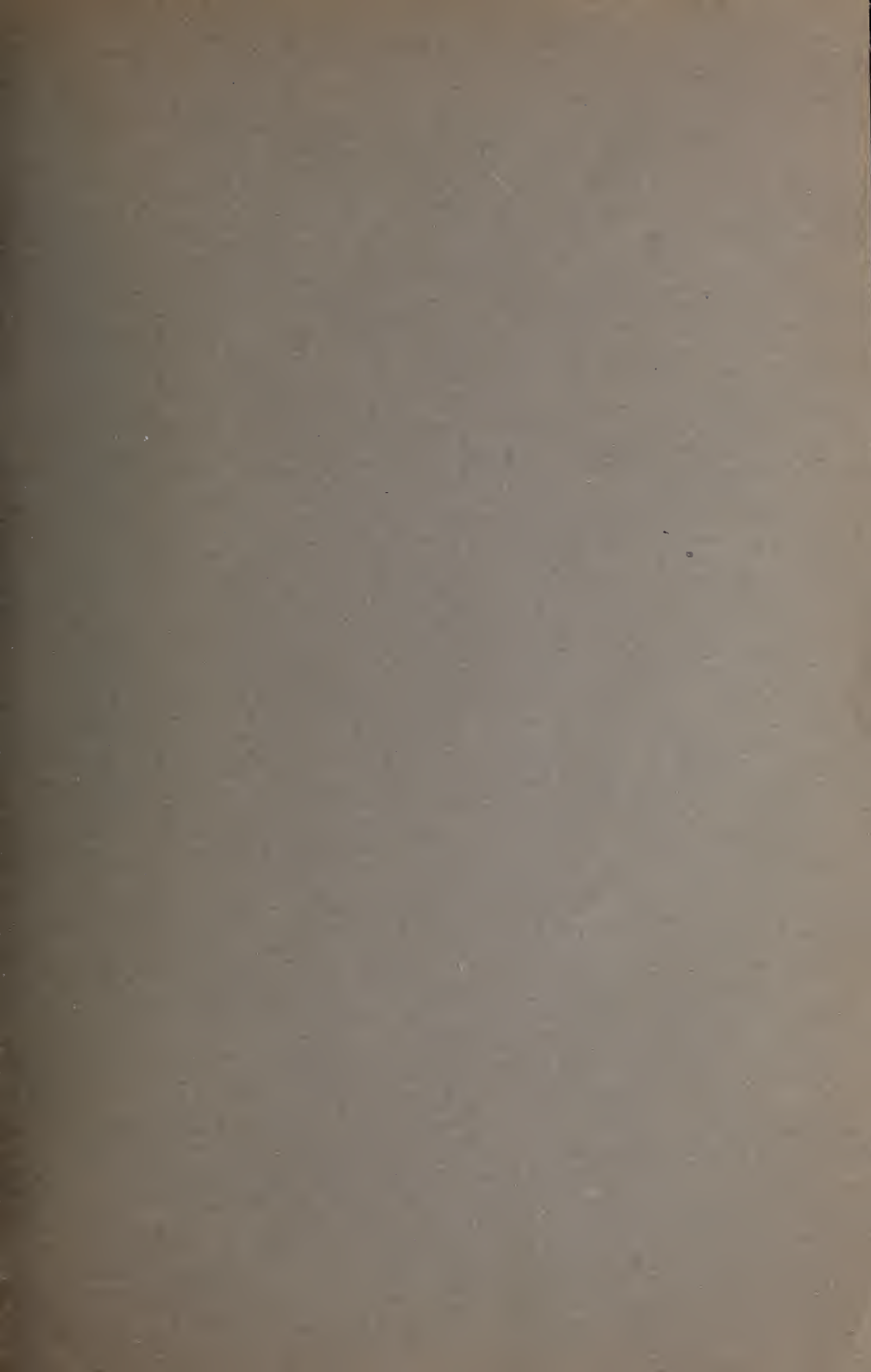
PRESIDENT KESSLER: One word of appreciation to those who have helped us in our exhibits. It is due largely to the efforts of our committee on exhibits, Mr. Ford, Chairman, that it has been such a success. We want to thank Mr. Latta, of the Underwriters for the pictures we saw just preceding this meeting tonight.

Before we adjourn we would like to hear a second to the motion that was made by Mr. Berndt, that a hearty vote of thanks be extended to those who assisted in the program of the conference, and I am going to ask not only our members, but our guests and friends, to give a rising vote of thanks to those named.

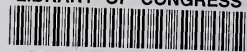
(The motion was duly seconded and a rising vote of thanks was given to the speakers of the conference.)

The meeting then adjourned.





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